Network of Independent Agricultural Experts in the CEE Candidate Countries

THE FUTURE OF RURAL AREAS IN THE CEE NEW MEMBER STATES

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PREFACE

At the end of 2000, the European Commission Directorate General for Agriculture set up the *Network of Independent Agricultural Experts in the CEE Candidate Countries* in order to obtain expert advice and impartial analyses on a range of issues related to the agricultural situation, rural development and future prospects of the CEE Candidate Countries. The Network is made up of approximately 20 country experts (in general, two per candidate country) and the Advisory Body.

In 2003, the Network analysed "The future of rural areas in the CEE new Member States". This report has been prepared by the Advisory Body – for which IAMO (Institute of Agricultural Development in Central and Eastern Europe, Halle, Germany) acts as the home institute – in co-operation with the country experts and particularly with those acting as lead experts. The members of the Advisory Body were:

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Graham Dalton:	Rural economies and their developments; in particular, labour market trends and off-farm economic development (chapter 4)
Sophia Davidova:	Rural infrastructure and services (chapter 5)
Stephan Bojnec	Developments in the agri-food sector with special emphasis on quality and sanitary issues and resulting effects on rural areas (chapter 6)
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Previously, the Network has provided other reports on various topics for the European Commission. The following are available on the Commission's websites:

- Key Developments in the Agri-Food Chain and on Restructuring and Privatisation in the CEE Candidate Countries (http://europa.eu.int/comm/agriculture/publi/reports/agrifoodchain/2002en.pdf)
- Social Security Systems and Demographic Developments in Agriculture in the CEE Candidate Countries (http://europa.eu.int/comm/agriculture/publi/reports/ccsocialsec/fullrep_en.pdf)
- Consumption Trends for Dairy and Livestock Products, and the Use of Feeds in Production, in the CEE Candidate Countries (http://europa.eu.int/comm/agriculture/publi/reports/ccconsumption/fullrep_en.pdf)

Another report was published by IAMO and is available at IAMO's website:

- Development of Agricultural Market and Trade Policies in the CEE Candidate Countries (http://www.iamo.de/Publika/Studies_Abst/iamo_vol19.pdf)

Peter Weingarten,
on behalf of the Advisory Body of the
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Halle/Germany, January 2004

EXECUTIVE SUMMARY

The aim of this report is to analyse the *current situation and future prospects of rural areas* in the eight Central and Eastern European countries (CEECs) acceding the European Union on May, 1st, 2004 – Estonia, Lithuania, Latvia, Poland, the Czech Republic, Slovakia, Hungary and Slovenia – as well as in Romania and Bulgaria, which will likely become EU members in 2007.[1] Rural development measures have become more important in recent years. As shown in the reform of the Common Agricultural Policy of June 2003, as well as the conclusions of the Second European Conference on Rural Development, held in Salzburg, in November 2003, this importance will grow further in the future. By improving the knowledge of rural areas in Central and Eastern Europe, the results of this analysis shall support policy makers who aim to reduce disparities between the levels of development of the various regions in the EU.

The report is mainly based on background information provided by the country experts of the *Network of Independent Agricultural Experts in the CEE Candidate Countries* and on data taken from Eurostat's NewCronos Regio database.

Typology of rural areas

The design of policies aiming to improve the socio-economic situation in rural areas, thereby reducing interregional disparities, requires identifying specific types of regions and their peculiarities, since rural areas cannot be considered as being homogeneous. Besides several maps visualising the characteristics of regions in the CEECs at NUTS-2 and NUTS-3 level, the report additionally provides a typology of regions according to demographic and socio-economic criteria. The cluster analysis on the NUTS-3 level revealed five different types of regions as the most adequate result. Three are largely rural:

- Cluster A: Agrarian lowest income regions with a very high unemployment rate;
- Cluster B: Agrarian low income regions;
- Cluster C: Average developed middle income regions with a high unemployment rate.

One includes both rural, and especially industrialised urban areas:

- Cluster D: More industrialized middle-income regions.

And the last type covers only large cities:

- Cluster E: Capital regions and other large cities with high income.

The results confirm that rural areas cannot be considered homogeneous and that general statements like "over-aged population" are not appropriate. The cluster analysis provides clues for the elaboration of rural development measures. For example, educational measures should be adapted to the age structure of regions and the necessary structural change should be particularly supported in still strong agrarian regions. The goal of improving the efficiency of rural development programmes requires more detailed analyses than just on a NUTS-3 level in order to apply concrete policy measures adapted to the peculiarities of the specific regions. Furthermore, it will be an important task to evaluate rural development measures in the CEECs and to investigate their impacts on different regional types.

In general, the importance of agriculture declines relatively to that of other industries during the course of economic development in any given country. Nevertheless, in the medium–term,

[1] Despite the different status of these two groups of countries with regard to their accession status, these 10 CEECs are also referred to as new Member States in this report for better readability.

agriculture will still play an important role in most of the rural areas in Central and Eastern Europe.

Situation and developments of farm economic performance and its effects on rural areas

The dual ***farm structure*** is undoubtedly one of the specific features of agriculture in the CEECs. This holds with regard to the size of the farms – CEECs have many small ones, which are often subsistence or part-time-oriented, and very large enterprises. Duality is also observed in terms of ownership. In addition, land fragmentation is another dual characteristic of CEECs' agriculture. The large holdings cultivate considerable lot sizes, while the small ones operate on very small plots – too small to use large machinery. There is a strong expectation among the country experts that in the next few years, the number of smallest farms will decrease; and, to an even larger extent, agricultural land will be moved to larger holdings.

Besides land and labour, ***capital stock*** is also important for further development of a farm. While land and labour are abundantly available to agriculture in some CEECs, capital is not. Polish, Hungarian and Czech farms are much better endowed with capital than those in Slovakia, Lithuania and Estonia. The value of assets per hectare diminishes as the farm size increases. The high value of assets per hectare on small farms is largely due to the considerable quantity of fixed assets. This raises doubts regarding their productivity. However, as various studies show, particularly for Poland, small and medium-sized farms are usually overequipped. However, their capital stock, especially machinery and buildings, is largely depreciated and out-of-date. Hence, it is not sure whether these fixed assets are still used much in production or are more or less a statistical reminder. On the other hand, large farms use modern, labour saving technologies, i.e., high quality and efficient machines.

The ***income situation in agriculture*** in the new Member States is difficult to assess. Not only do farms in the smallest size group earn a small income; this holds, in general, for the average of all farms. With the exception of Estonia and the Czech Republic, farmers in all other CEECs earn less than the average worker. In some countries, the differences between these two income figures are enormous, e.g., in Latvia. In all countries joining the EU in 2004, positive impacts on farm income are expected due to product prices moving upwards, closer to the EU-15 average, and direct payments of the CAP, although not all groups of farmers will equally benefit from accession. For example, calculations for Poland indicate that in the first year after accession, the gross farm income of the entire sector will reach 128% (direct payments: 35% of EU level) to 147% (direct payments: 55% of EU level) of that in the base year 2001/2002.

The ***future development*** of farm structure and employment in agriculture is dependent on many factors. One of them is the expected earnings in agriculture, which are influenced by agricultural policy. However, the opportunity costs of labour of those engaged in agriculture are even more important for deciding to stay in agriculture or to leave the sector. They are dependent on the availability of off-farm income opportunities, the age structure and the endowment with human capital. There is evidence in many current EU Member States that general economic development is more decisive for structural change in agriculture than the economic situation in this sector itself. This probably also holds for the new Member States.

There is a common expectation that in the near future – as a result of improving technologies and rising inputs – all yields will increase, not only absolutely, but also relatively to the corresponding EU-15 average. However, by the year 2010, after accession to the EU, yields in the new Member States are expected to still be lower than the EU average.

The ***strengths, weaknesses, opportunities, and threats with regard to agriculture*** as assessed by the country experts do result in a differentiated picture. Natural conditions for farming is evaluated as a strength in some countries (Estonia, Slovakia, Romania, Bulgaria) while in

other countries as weakness (Poland, Slovenia, Czech Republic in large parts of the country). The labour force situation in agriculture is evaluated positively for the Czech Republic, Slovakia and Estonia, while in other countries the high number of small farm holdings is considered and judged to lead to the problem of hidden unemployment with low labour productivity (Poland, Latvia and Romania). Low costs of main inputs, including those of labour, are listed as strength in only three countries (Hungary, Lithuania and Poland). The fragmentation of farm structure is the most commonly-mentioned weakness. On the other hand, a high share of large farms, allowing the exploitation of economies of scale, is listed as strength of the Czech Republic, Slovakia and Hungary. In the latter two countries, however, a dual farm structure exists with a high share of small holdings. This is considered a weakness. Not surprisingly, for a number of countries, easier access to EU markets after enlargement is seen as an opportunity, and at the same time, the possibility of increased competition on domestic markets is a threat. Other opportunities most frequently-mentioned in the analyses were related mainly to improvements in technologies of agricultural production, and more widely to the dissemination of more environmentally-friendly practices and the development of organic production. This could result in increased productivity, but also improved quality of agricultural produce.

Developments in the agri-food sector with special emphasis on quality and sanitary issues and resulting effects on rural areas

The above mentioned possible development of agriculture and farms in the new Member States will also crucially depend on the development of the agri-food sector, because this sector represents a major link between farmers and consumers. The major challenge for the agri-food sector is the ***implementation of*** quality and sanitary ***standards*** as part of the *acquis communautaire*. Progress has been made, but further steps still have to be accomplished. According to the country experts, health rules of the production and processing of dairy products have been fully adjusted to EU regulation or are envisaged to be in force in 2004 in all 8 countries acceding into the EU in 2004. Problems in this respect seem to be at this point most pronounced in Poland. In this country as well as in Bulgaria and Romania, national legislation is so far only partly in compliance with EU regulations. The situation is quite similar with respect to the meat sector. However, while most new Member States have been quite successful in the transposition of legislation in the different areas, full implementation and enforcement of the *acquis communautaire* still needs to be accelerated and strengthened. Enforcement problems are due to, e.g., a shortage of well-trained and qualified staff, an ineffective monitoring and/or penalty systems or unclear divisions of authority and competencies. Furthermore, the huge investments necessary to adapt to EU standards cause severe problems.

The ***competitiveness*** of the dairy sector is hampered by the insufficient quality of still a considerable share of the raw milk processed, small average herd sizes in many countries, and for this reason high milk collecting costs, over-capacities and the small size of most of the dairy plants. To improve the economic performance in the dairy sector, a continuation of the concentration process of dairy plants and herd sizes is necessary and will be fostered by EU accession. The problems in the meat sector are similar to those in the dairy sector. It is likely that in both branches a considerable share of enterprises will have to close down because they are not able to fulfil EU standards and/or withstand EU competition.

The country experts assessed the ***strengths, weaknesses, opportunities, and threats*** of the dairy and meat industry. As strengths, a rise in competitiveness due to lower costs in production and processing, the large amount of foreign investment, but also the implementation of the *acquis* are mentioned. The latter opens up the possibility to export high quality products to the EU. Hygienic standards are, at the same time, seen as a weakness for almost the same country group (Latvia, Poland, Slovenia, Romania, and Bulgaria), since it requires huge investments. As far as the *acquis* has been implemented it has strengthened the position of the respective enterprises in the countries. However, there are still many enterprises that are be-

hind following these hygienic standards and this, indeed, can be regarded as a weakness. The aspect of "adoption of EU-standards" is also mentioned as an opportunity by the country experts of Latvia, the Czech Republic, Slovakia and Slovenia since they induce higher quality of the dairy products. On the other hand, these standards are regarded as a threat by the Latvian, Estonian and Slovenian experts since the implementation of those standards leads not only to an improvement of the quality but also to higher production and processing costs. In countries where farm structure is especially strongly fragmented (Latvia, Poland and Slovenia) a trend towards concentration of production is regarded as an opportunity. For some countries, accession into the enlarged EU market provides an opportunity to increase exports. EU enlargement also offers the chance of entering new markets for highly processed and organic products.

Rural economies and their developments; in particular, labour market trends and off-farm economic development

Due to the decreasing importance of agriculture, off-farm employment and income sources will become more and more decisive for the socio-economic well-being in rural areas. So far, ***rural living standards*** in the CEECs are significantly below those of urban areas, especially capital cities. The disparities between urban and rural regions, e.g., in terms of GDP per capita, increased in most countries between 1995 and 2000, as positive rates of economic growth are seemingly faster in wealthier regions with already relatively high income. The ratio between the poorest and the richest NUTS-3 region is highest in Poland (1:5.4 in 2000) and Latvia (1:4.3). Many persons, who live in rural regions of the new Member States, and especially those in predominantly rural regions, are poor as judged by the level of GDP per capita relative to the standards of the EU-15, and some are getting poorer. Some are living under conditions of extreme poverty, particularly in Latvia, Romania and Bulgaria.

Rural areas have a ***population*** density that is, in general, 41-59% below the national average. This induces both less incentives for investment as well as difficulties in providing sufficient infrastructure. Within the last decade, the whole population of the CEEC (except most Polish regions, Slovakia and Northeastern Romania) decreased, the result of low, falling birth rates, high death rates and out-migration. Internal net migration rates are on the whole low, but there is a detectable tendency for people to migrate away from peripheral regions to the capital regions. The metropolitan suburbs are especially gaining in population. However, rural areas are not always regions of out-migration. Net in-migration in rural areas is taking place, for instance, in Hungary and Romania. More important than absolute numbers of in- or out-migrants seem to be the characteristics of these migrants. At present, a tendency of out-migration of young people of working age from rural areas can be assumed, resulting in higher age dependency ratios (i.e., a high share of people aged 60 and over to those between 20-59), as shown, for example, in the 44% of rural Estonia (national: 40%; all CEECs: 32%). High age dependency ratios stand for a relatively small size of the active population of working age and will put pressure on the public budgets from the sides of pension and health insurance, which is an increasing problem all over Europe. However, despite higher death rates and age dependency ratios in rural areas, the statement that individual farmers tend in general to be over-aged cannot be confirmed. All countries where data was provided show a considerably high proportion of the agricultural labour force under 35.

The level of ***educational attainment*** amongst the rural population is, in all new Member States, lower than the standard of the respective total populations (but roughly at the same levels as in the current Member States), whereby rural-urban differences seem to be less pronounced in the Czech Republic, Hungary, Poland and Latvia. While the net of primary institutions is normally well-developed all over the countries, most higher education institutions are concentrated in towns, so that progression will incur the costs of commuting or relocation, depending on the distances and availability of public transport. The quality of rural education

is reported to be, in general, lower than in towns due to difficulties attracting the best teachers, worse school equipment, less access to information technology, few special schools and finally, financial problems. Lifelong learning opportunities – especially courses for new developments such as IT and language training – are less available in rural areas compared with towns.

In most countries, ***unemployment*** is consistently shown to be a more serious issue in rural areas. Long-term unemployment is a common phenomenon and unemployment amongst women and young people can be especially high. Rural unemployment would be more extensive if the underemployment found in the larger agricultural sectors in the more rural districts were recognised. Underemployment is probably a feature of small farm structure and thus does not necessarily apply to all regions. Rural employment consists, for the most part, of self-employed people and unpaid family members, whereas in urban labour markets many more people have an employee status. Precise figures on underemployment in agriculture are not available, but for Poland, the country experts estimate the rate in the different *voivoidships* at 16% to 40% of total agricultural labour input.

Rural ***employment patterns*** have been changing inexorably, with falls in both agricultural and industrial employment. Given that industrial enterprises in most rural regions, except in the case of many Romanian districts, employ many more people than agriculture, these changes in the demand for labour by industry have more significance for the rural workforce than do those in agricultural employment. The point was made by several country experts that where large industrial enterprises, e.g., in the mining sector, were closed down, the local effects are especially serious. Employment in the service sector has been growing, but mainly in urban centres, and more slowly in most rural districts. Even so, the service sector is by far the most important employer in the rural areas of most of the new Member States.

The ***economic performance of regional economies*** is mostly dependent on the industrial and service sectors. Agriculture is a more important source of output in the more rural regions. Growth is most commonly associated with a fall in agricultural and industrial output and a rise in the output of services, but there are exceptions. In some regions, such as Bulgaria, agricultural output is increasing. In Hungary, industrial output is rising. The service sector tends to be based in urban areas, especially in capital regions. There is thus a highly uneven distribution of gross value added between urban and rural regions.

Wage rates vary substantially between sectors, with agriculture and trading activities often being the sectors with the lowest wage rates. Wage rates also vary between regions, typically being much higher in the capital regions and much lower in more rural locations. Wages show marked country variation, but are especially low in Romania and Bulgaria (around EUR 80 per month for agricultural workers). Women, on the whole, receive lower wages than men. Rural incomes depend heavily on social payments and on paid employment in both the urban and rural economy. For example, the country experts report that social payments are the main source of income for around one third of the rural households in Estonia, Lithuania and Poland. There are very few self-employed people outside of agriculture.

In most countries, investment in relation to the gross value added would appear to be high enough to generate future growth. But in some countries and many rural regions, this is not the case. Urban centres, and especially the capitals, attract a greater proportion of investment.

Commuting by rural people to urban-based jobs is consistently a common and growing practice. Up to half of the rural workforce may be involved in this type of employment. Young, male workers are more likely to commute to work, whereas females are more constrained by family responsibilities. The most often-mentioned sectors where commuters are employed are construction and transport. Commuting to work by rural people has been an established practice for a long time, but has adapted during the transition to a market economy in response to

structural changes in both industry and agriculture. There is some evidence provided for different types of rural commuters, including those who choose to live in the countryside and work in towns as a preferred lifestyle as opposed to the more common person who cannot get a job near where he lives.

To create ***alternative income sources*** in rural areas, most country experts have the most positive expectations in tourism, followed by manufacturing, specialist food and drink and subsequently information technology (IT). Further sectors where growth is expected to be based include investment activities in infrastructure in Poland, energy in the case of Estonia, landscape and environmental management in the case of the Czech Republic and trade in the case of Hungary and Slovakia. Conditions for growth that were mentioned include infrastructure, the importance of natural conditions such as coasts and mountains for tourism, the proximity of neighbouring countries for trading opportunities, an industrial base, effective institutions and communications. In many countries, the presently most prosperous regions are considered to have the best prospects. A critical review seems to be necessary concerning the almost universally-positive assessments of the importance of (agro-)tourism. For most of the regions, the contribution of tourism will probably only be of minor importance, since the tourism market is a global, highly competitive market. In addition, the development of the necessary basic infrastructure and institutions to support tourism is hampered by a lack of capital. It is likely that only in certain areas with favourable conditions can tourism play an important role. The same situation and problems can be expected for other sectors, especially IT.

A specific condition for growth as measured by the rate of business start-ups is entrepreneurship. Start-ups occur less frequently on the whole in rural and poorer regions. This may be explained by a lack of entrepreneurs, in combination with poor business conditions. Where information on business start-ups is reported, it would seem that the number of such businesses per capita of population, and their small size, are insufficient for creating significant growth.

The analysis included a systematic investigation of the ***strengths, weaknesses, opportunities, and threats of rural areas***. The five strengths which are most often mentioned are a relatively good infrastructure, existing natural resources with their recreational potential, experiences in off-farm business, skilled labour and the high availability of a work force. Some of these strengths are also stated as weaknesses, e.g., poor infrastructure and poor qualifications and management skills. What at first sounds contradictory simply means that the conditions of rural areas should not be generalised, but differentiated according to different classes of population or situations. For Poland, e.g., the differences in qualification are mainly seen as differences between educated, employed persons and unemployed people with low skills. EU accession is seen as an opportunity with respect to available structural funds and development programs, market access and an expected increase of FDI after accession. Hopes are also connected with the improvement of education and vocational training and rural infrastructure, including (tele)communication networks. Threats are relatively heterogeneous across the different countries. Stated by more than one country are the ageing of the population and migration, which may prove to be a vicious circle, the low absorption of structural funds because of problems in mobilizing own financial resources, the lack of required reforms, the further decline in traditional agriculture and industry and finally, the further marginalisation of remote areas and growing disparities.

Rural infrastructure and services

Public infrastructure is one of the key factors behind economic development in rural areas, possibly as strength, but also as a weakness and hampering factor. Rural infrastructure incorporates the physical, social, financial and market infrastructure. Most of the rural infrastructure in CEECs was built under central planning. During transition, due to the harder budget

constraints at all levels, the maintenance of physical infrastructure has deteriorated and little has been done to improve the social infrastructure. However, the constraints are not only budgetary. The low and decreasing density of population in some rural areas, the out-migration of young people and the need to improve the quality of social services through concentration have made some rural areas worse off. The market infrastructure has developed in most of the CEECs, but it needs both growth and quality improvement. This is particularly the case of the agricultural advisory system, which must be able to provide complex advice to farm households; furthermore, these farm households must be treated as businesses, not merely as agricultural producers. In general, a great deal of additional public investments is required for upgrading rural infrastructure. EU accession is the opportunity most often mentioned by the country experts, since it offers support through the various structural funds, especially through SAPARD. Participating in these programmes necessitates rural development planning, which some of the experts view as an opportunity. Improved public infrastructure could pave the way for the establishment of complementary private services, which are to help relax rural unemployment.

Agri-environmental policies and the impact of agriculture and agricultural policy on the rural environment

Rural areas are often associated with high environmental values, which are a precious capital for ecology, recreation and tourism, but which are also affected by agriculture. During the socialist era, agri-environmental issues were typically not a political priority. In the ***initial years of transition***, agri-environmental issues received even less attention as the intensity of production fell. The latter was unfortunate, as reducing agri-environmental assessments to debates over intensification is inadequate. Low-input farming still requires careful management and monitoring, especially in sensitive ecosystems. Furthermore, land abandonment and under-grazing are creating new environmental pressures. Semi-natural grassland, which is highly valuable with respect to biodiversity, depends for its maintenance on appropriate management by farmers through mowing or grazing. Therefore, it is particularly sensitive to abandonment (or intensification). Compared with most of the current EU Member States, the proportion of semi-natural grassland in the new Member States is high.

The late 1990s saw the introduction of a raft of ***new environmental laws*** or revisions to existing regulations. These developments were largely stimulated by a need to adopt the *acquis communautaire* rather than domestic pressures. While legal harmonisation has progressed, the ability to enforce and monitor new regulations has often lagged behind. In states where restitution policies have been implemented, the 1990s witnessed a large increase in the number of holdings, creating an extremely diverse set of actors with contrasting farm sizes, degrees of specialisation and levels of education. This represents a major challenge to both extension and enforcement agencies. Local capacity-building remains a major challenge. In particular, the adoption of the Nitrate Directive has been controversial and many of the problems that were reported in current Member States are being replicated in the CEECs.

With regard to ***nature protection***, the new Member States have a large proportion of their agricultural land designated as protected. Many of these designated areas have their origins in the socialist era, when they were regulated largely by 'command and punish' measures. Unfortunately, the delay in the implementation of envisaged agri-environmental measures under SAPARD has inhibited the growth of practical experience in administering new policy tools.

The areas devoted to ***organic farming*** have grown throughout the region, albeit from a very small base. The degree of support for conversion varies significantly between the CEECs. Some new Member States, such as Slovenia, have recognised that second pillar measures will be of vital importance to the survival of their agriculture; greater domestic support and a long history of capacity building in this area have reinforced this.

For Poland, the country experts emphasise that the Polish environmental legislation is already fully harmonised with that of the EU, corresponding with international treaties and agreements ratified by Poland. However, it is stated that implementation lags behind the requirements and expectations mainly due to insufficient national funding. Country experts expect that after the accession to the EU, additional funding provided by rural development programs, the sector operational program and structural funds will lead to significant ***progress in implementing*** existing environmental legislation. Most likely, these findings for Poland also hold for other new Member States.

Policy instruments

To solve the manifold rural problems addressed in the preceding chapters, policy instruments to support agriculture and rural development need to be applied in the new Member States.

Evidence is provided that a general ***convergence of agricultural policy*** instruments in the CEECs towards those of the EU has taken place. This is shown in the overall level of support as measured by the producer support estimates (PSEs), and by the decline in the proportion of that support given through market price instruments. Most of the agricultural policy instruments applied in the EU have also been implemented in the new Member States. However, the adaptation of the policy instruments towards CAP-like measures had been taken on an ad hoc basis and had not been implemented systematically. Rapid changes in the use of policy instruments and the level of support for different commodities led to high policy and market risks for farmers. As a consequence, the increase in total level of support, and notably that of market price support, has not led to the expected increase of production in most of the new Member States. Apart from high policy and market risks, the lack of institutions in rural areas in the new Member States heavily contributed to the slow pace in agricultural recovery and the limited success of agricultural credit programmes.

However, besides the classical CAP-like policies, the new Member States apply a wide variety of ***additional measures*** to support their rural agricultural sectors and rural economies. Some of the policies are financed by the SAPARD funds and will help the new Member States to implement the regulations of the *acquis communautaire*. It is obvious that most funds are aimed at improving farm businesses. In particular, support for investments in farm businesses takes a lion's share of total budgetary outlay in this area in order to overcome the lack of capital as a bottleneck for the further modernisation of agriculture. All governments in the CEECs have granted their farmers credit guarantees and/or interest rate subsidies to improve their access to loans. Aids for young farmers are granted in all CEECs except for Estonia, Latvia and Slovenia, where such schemes are envisaged to be introduced after EU accession. Such measures are aimed at stimulating, even speeding up, generational change in the countryside and improving access to credit resources for farm establishment, extension and modernisation. In some countries such as Poland, these measures are evaluated to have been extremely successful; experts from other countries criticise, however, that the financial means devoted to these measures have by far been too small to have any fundamental effect.

Support for agricultural management services and agricultural ***advisory services*** is an important measure for improving human capital. All CEECs except for the Czech Republic have implemented such services, mostly co-financed by the state and linked to research institutes. Especially in countries dominated by small farms, the advisory services are highly valued, since here the managerial skills of the farmers are at present still relatively poor. As the country experts point out, in several countries, the level of usage of these services is still very low, although as in the case of Slovakia expanding rather rapidly. Some experts also criticise that at present, the advisory services are too focused towards technical issues and are less-oriented towards economic and policy advice. Finally, existing extension services do not yet provide

the expected quality of advice, with insufficient capabilities and capacities for providing market-oriented business advice being observable.

Measures to support agricultural and rural economies were assessed by the country experts with respect to their ***relevance in the CEECs***. Almost all experts regard measures supporting the compliance with community standards as most relevant. Also, support for the marketing of quality agricultural products, for marketing and processing in general, for young farmers as well as for investments in agricultural holdings, are considered to be of very high importance in most countries. However, not in all cases is the relevance reflected in the financial means devoted to the respective area.

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LIST OF ABBREVIATIONS

ARIB	Agricultural Registers and Information Board (Estonia)
AWU	Annual Work Units
BG	Bulgaria
CAP	Common Agricultural Policy
CEE	Central and Eastern Europe
CEECs	Central and Eastern European Countries, here: Estonia, Latvia, Lithuania, Poland, the Czech Republic, Slovakia, Hungary, Slovenia, Romania, Bulgaria
CGAP	Code of Good Agricultural Practise
CIS	Commonwealth of Independent States
CZ	Czech Republic
EC	European Commission
EEIC	Estonian Environmental Information Centre
EPAs	Environmental Protection Agencies
ESU	European Size Unit
EST	Estonia
EU	European Union
EUR	Euro
FDI	Foreign direct investment
GDP (p.c.)	Gross domestic product (per capita)
GDP	Gross domestic product
GFCF	Gross fixed capital formation
GMO	Genetically modified organism
GVA	Gross value added
H	Hungary
HACCP	Hazard Analysis Critical Control Point
IUCN	World Conversation Union (International Union for Conservation of Nature)
IUNG	Institute of Soil Sience and Fertilisation (Poland)
LEADER	Liaisons Entre les Actions du Développement de l'Économie Rurale (Community initiative for rural development of the European Union)
LFA	Less favoured area
LN	Natural logarithm
LT	Lithuania
LV	Latvia

NEP	National Environmental Programme
NUTS	Nomenclature des Unités Territoriales Statistiques
NVZs	Nitrate vulnerable zones
ODR	Extension Service Centres (Poland)
OECD	Organisation for Economic Cooperation and Development
PL	Poland
PPI	Plant Production Inspectorate (Estonia)
PPP	Purchasing Power Parities
PSE	Producer Subsidy Estimates
ROM	Romania
SAPARD	Special Accession Programme for Agriculture and Rural Development
SFVS	State food and veterinary service
SK	Slovakia
SKOP	Slovene Agricultural Environmental Programme
SLO	Slovenia
SME	Small and medium enterprise
SMP	Skimmed milk powder
UAA	Utilised agricultural area
UKZUS	Central Institute for Supervising and Testing in Agriculture (Czech Republic)
USD	United States Dollar
VAT	Value added tax
VUMOP	Research Institute for Melioration and Soil Protection (Czech Republic)

1 INTRODUCTION

When comparing rural and urban areas, the former are often associated with high environmental values, but even more with a backwardness in terms of income and employment opportunities, the migration of young, skilled people and a low population density. This not only holds for the Central and Eastern European countries (CEECs), but also for the EU-15 and other regions of the world. Often stated reasons for the backwardness are the lack of agglomeration advantages, the low endowment with infrastructure and human capital, as well as the effects of structural changes in the economy towards a growing importance of services and globalisation (SCHRADER 1999). In addition to these problems, which are characteristic for rural areas in many regions of the world, those in Central and Eastern Europe have also had to cope with the transition from the socialist central planning systems towards a democratic society and a market economy. This was reflected in the significant loss of employment opportunities at the beginning of the 1990's, particularly in agriculture and heavy industry, due to the substantial restructuring processes. Other socialist legacies are monostructured regions as a result of: the strong concentration and vertical integration of specific economic branches, the high average age of those employed in agriculture in countries which restituted land to former owners, and a loss of rural infrastructure, particularly of social infrastructure, caused by the break-down or privatisation of state- or collectively-owned enterprises (BUCHENRIEDER and KNÜPFER 2002). Due to the more egalitarian policies of the socialist systems, the transition processes have additionally contributed to a stronger economic differentiation of the societies in Central and Eastern Europe and to an increase of rural-urban disparities.

In the socialist era, regional or rural policies requiring decentralised decision making, i.e., local actors and institutions, only played an insignificant role in the CEECs. In the course of preparing for EU membership and for adopting the EU rural development and structural policies, rural areas have become more important in the new Member States. As laid down in Article 158 of the Treaty Establishing the European Community, interregional disparities shall be overcome:

"In order to promote its overall harmonious development, the Community shall develop and pursue its actions leading to the strengthening of its economic and social cohesion. In particular, the Community shall aim at reducing disparities between the levels of development of the various regions and the backwardness of the least favoured regions or islands, including rural areas."

The most important EU policies for pursuing this goal are those financed by the structural and cohesion funds and the Common Agricultural Policy (CAP). Within the CAP rural development measures, the second pillar has gained in importance during recent years. As the reform of the CAP of June 2003 and the conclusions of the Second European Conference on Rural Development, held in Salzburg in November 2003, show, this importance will grow further in the future.

However, in order to efficiently address policies for overcoming rural-urban disparities, more knowledge of the specific peculiarities – the strengths and weaknesses, opportunities and threats (SWOT) – of different regions in Central and Eastern Europe (CEE) is necessary. Rural areas are much more heterogeneous than a generalised comparison with urban areas might indicate. Despite some common features, rural areas cannot be considered homogeneous. Rather, they have specific characteristics which can differ within a country and even more across countries.

The aim of this study is to analyse the current situation and future prospects of rural areas in those eight Central and Eastern European countries which will accede to the European Union on May, 1st, 2004 – Estonia, Lithuania, Latvia, Poland, the Czech Republic, Slovakia, Hungary and Slovenia – as well as Romania and Bulgaria, which will likely become EU members

in 2007. Despite the difference in their accession status, these two groups of countries are referred to as new Member States in this report for better readability.[2] The study is mainly based on background information provided by the country experts of the *Network of Independent Agricultural Experts in the CEE Candidate Countries* and on data taken from Eurostat's NewCronos Regio database. Of the many structural indicators for the NUTS-2 regions in the CEECs, available in the NewCronos Regio database, the most important ones were compiled and are listed in Table A-1.1 in the annex.

The report is structured as follows. In chapter 2, different definitions of rural areas are discussed. For the one applied in this study, the population density is of crucial importance. Although the importance of agriculture for the well being of rural inhabitants is declining all over the world, many regions in CEE countries still depend on agriculture. Thus, chapter 3 assesses the situation and developments of economic performance of farms and their effects on rural areas, whereas chapter 4 focuses on rural economies in a broader sense. Besides rural living standards, factors influencing rural labour markets like demographic patterns, employment structures, the endowment with human capital and the importance of commuting are discussed. Furthermore, the potential for alternative income generation is assessed. Public infrastructure is one of the key factors behind economic development in rural areas. Therefore, chapter 5 is devoted to rural infrastructure, which incorporates physical, social, financial and market infrastructure. Chapter 6 investigates developments in the agri-food sector and its impact on rural areas. Special emphasis is put on the implementation of quality and sanitary standards as part of the *acquis communautaire*. Since these standards are of particular importance in the dairy and meat sector, these branches are at the centre of the analysis. As stated above, rural areas are often associated with high environmental values. Chapter 7 examines the impact of agriculture on the environment in general and sheds some light on specific agri-environmental policies such as the Nitrate Directive or public support for organic farming. Chapter 8 provides an overview of other policies applied in the new Member States to support rural areas. Finally, chapter 9 concentrates on regional differentiation and provides a typology of NUTS-2 and NUTS-3 regions in CEE as well as of NUTS-2 regions in the enlarged European Union by the means of cluster analysis. The study concludes with a summary of the main findings in chapter 10.

[2] The terms "CEECs" and "new Member States" are synonymously used in this report.

2 DEFINITION OF RURAL AREAS

The term "rural area" is often used in policy circles as well as in the scientific community and public debates. Nevertheless, there is no unequivocal definition of this term, which often merges regions with many diverse features. In its *European Charter for Rural Areas*, the Council of Europe characterises a rural area in a very general way, referring to it as "a stretch of inland or coastal countryside, including small towns and villages, where the main part of the area is used for:

- agriculture, forestry, aquaculture and fisheries,
- economic and cultural activities of country-dwellers (crafts, industry, services, etc),
- non-urban recreation and leisure areas [or natural reserves],
- other purposes, such as for housing."

The definition concludes by contrasting urban and rural areas: "The agricultural (including forestry, aquaculture and fisheries) and non-agricultural parts of a rural area form a whole distinguishable from an urban area, which is characterised by a high concentration of inhabitants and of vertical or horizontal structures" (BARTHELEMY AND VIDAL without year). However, rural areas should not be merely considered as the opposite of urban, densely populated areas. Rather, they should be further differentiated in order to take care of their specific peculiarities – their strengths and weaknesses, opportunities and threats. During the last few decades, the differences between specific rural areas have grown due to structural changes in agriculture and a growing share of rural population relying not on agriculture as an income source (cf. MCDONNAGH ET AL. 2001). Since there is no commonly accepted clear definition, there is also no standard typology of rural areas. Depending on the question investigated, there are various ways of classifications (WINDHORST 2000). One approach, by means of cluster analysis, will be presented in chapter 9. Classifying rural regions in the CEECs is additionally hampered by a lack of consistent data on a sufficiently disaggregated level.

Also within the European Union, there exists no commonly used definition for rural areas. The Member States have generally developed their own definitions of rural areas which are quite heterogeneous and not universally applicable. They are often based on socio-economic criteria such as agricultural patterns, density of inhabitants per square kilometre or population decline (EUROPEAN COMMISSION, DIRECTORATE GENERAL FOR AGRICULTURE 1997).

One simple definition of rural areas was developed by the OECD (1994) for making international comparisons of rural conditions and trends; the only criterion used is population density. At the local level (NUTS 5[3]), communities are regarded as rural if they have a *population density below 150 inhabitants per square kilometre*. At the regional level (mainly NUTS 3 or 2), the OECD distinguishes three main categories, depending on the share of the regions' population living in rural communities:

- *predominantly rural regions*: over 50% of the population living in rural communities;
- *significantly rural regions*: 15 to 50% of the population living in rural communities;
- *predominantly urban regions*: less than 15% of the population living in rural communities (EUROPEAN COMMISSION, DIRECTORATE GENERAL FOR AGRICULTURE 1997, p. 7).

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[3] NUTS = Nomenclature des Unités Territoriales Statistiques, ranging from NUTS 0 (whole country, in CEECs corresponding to NUTS 1) via further and further disaggregated units to NUTS 5 (local municipalities and communes). NUTS-2 divides each of the CEECs into 4 to 16 regions, except for Estonia, Latvia, Lithuania and Slovenia, where this level covers the whole country. NUTS 3 comprises 188 regions in the ten CEECs, NUTS 4 consists of 1,149 units and NUTS 5 makes up 21,656 municipalities (cf. section 9.1).

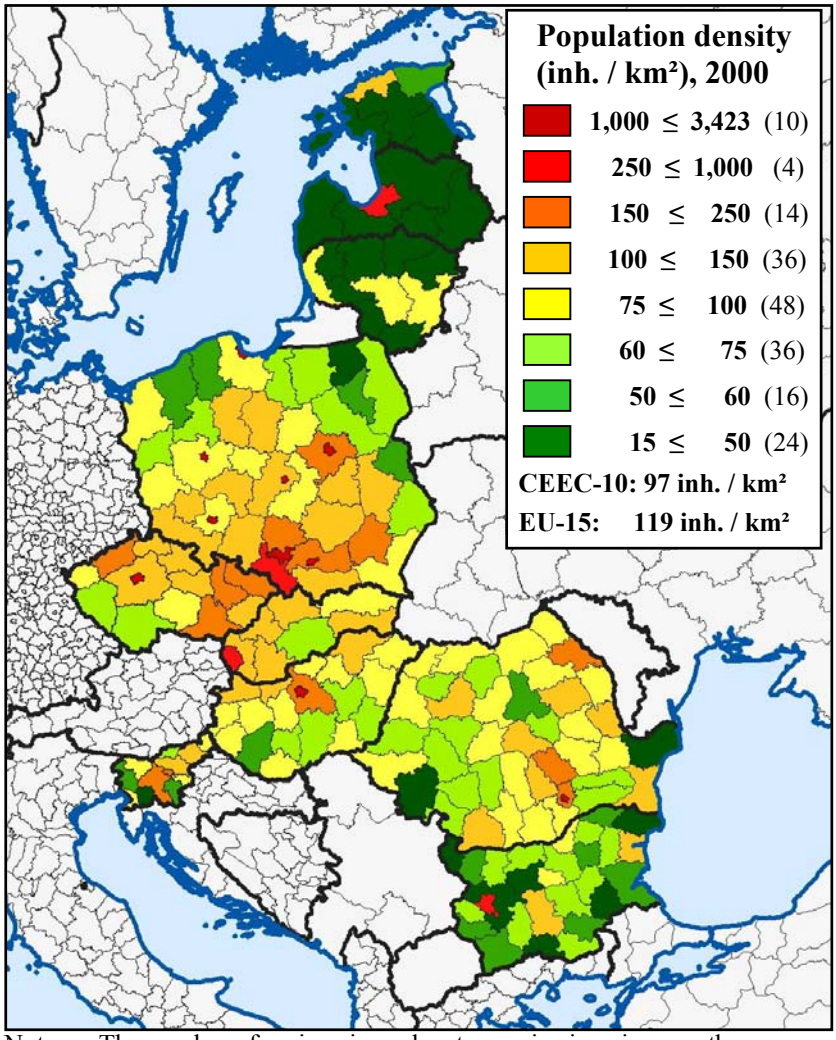
Another approach is provided by EUROSTAT, which is also mainly based on the criterion of population density, although it includes additionally absolute numbers of inhabitants. Regions are divided into three classes according to their degree of urbanisation:

- *Densely populated zones*: these are groups of contiguous municipalities, each with a population density greater than 500 inhabitants/km², and a total population for the zone of at least 50,000 inhabitants.
- *Intermediate zones*: these are groups of municipalities, each with a density greater than 100 inhabitants/km², not belonging to a densely populated zone. The zone's total population must be at least 50,000 inhabitants, or it must be adjacent to a densely populated zone.
- *Sparsely populated zones*: these are groups of municipalities not classified as either densely populated or intermediate.

A municipality or a contiguous group of municipalities not reaching the required density level, but fully contained within a densely populated or intermediate zone, is considered to be part of that zone. If located between a densely populated and intermediate zone, it is considered to be intermediate. For this to apply, the group of municipalities concerned must have an area of less than 100 km² (EUROPEAN COMMISSION, DIRECTORATE GENERAL FOR AGRICULTURE 1997, pp. 7-8).

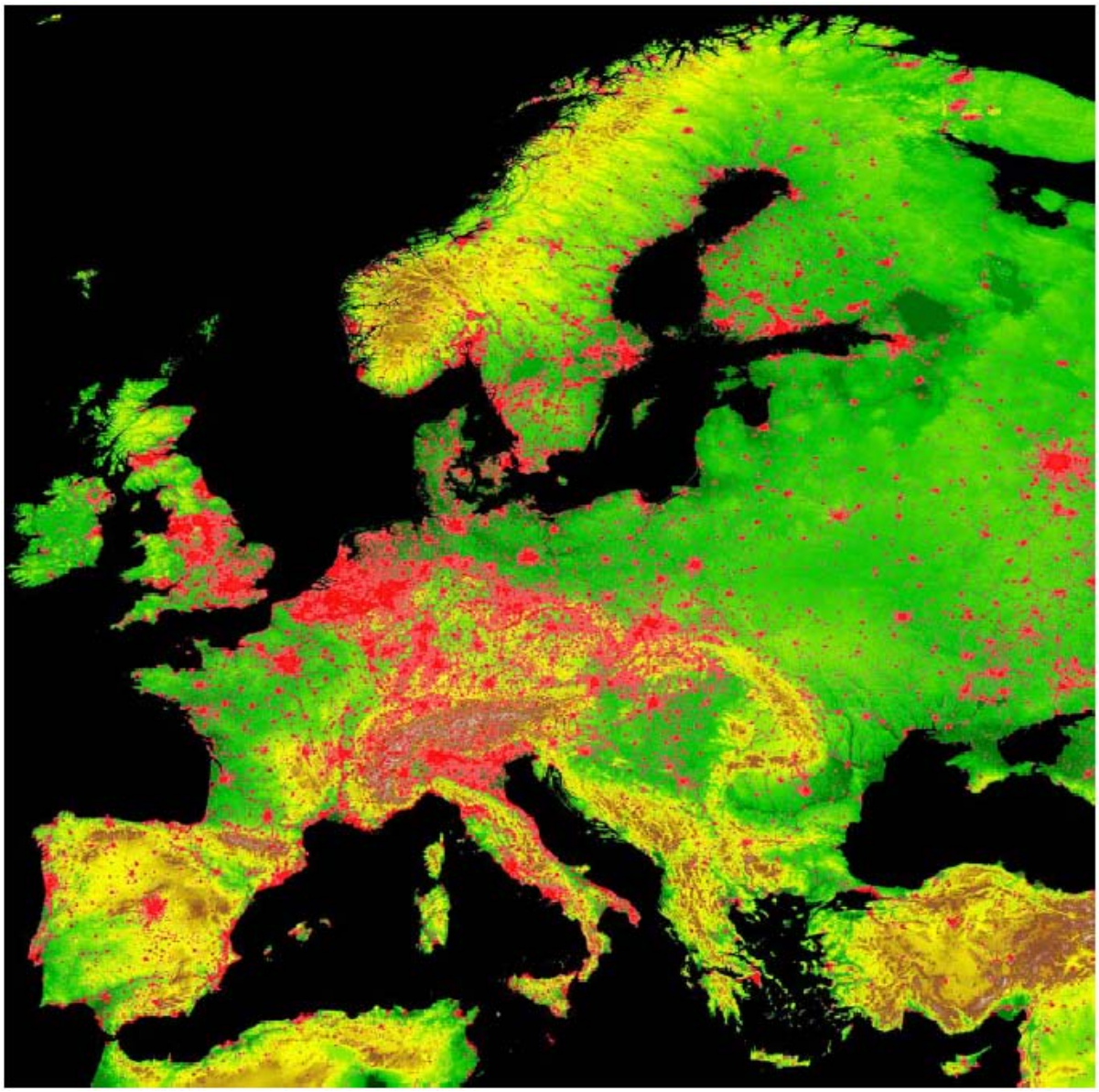
Using population density as the only criterion for defining rural areas is not unproblematic. Densities vary enormously across the different European countries, for example in the EU from an average of 17 inhabitants / km^2 in Finland, to 470 inhabitants / km^2 in the Netherlands; and in the CEECs from 30 inhabitants / km^2 in Estonia, to 130 inhabitants / km^2 in the Czech Republic. On average, the CEECs are less densely populated than the EU-15 (97 inhabitants / km^2 compared with 119 inhabitants / km^2). Map 2.1 illustrates the ranges of population density in the CEE NUTS-3 regions as being between 15 and 3,423 inhabitants per km^2. The most sparsely populated areas (in many cases <50 inhabitants / km^2) are located in the Baltic states, Bulgaria and parts of Romania, Slovenia and NE-Poland. The most densely populated areas (>100 inhabitants / km^2) are – beside the cities – in parts of Poland, the Czech Republic and Slovakia. Additionally, Map 2.2 gives an impression of the population density on a disaggregate level not only in the new Member States, but in all of Europe as estimated by stable night lights. In Southern and Central England, Belgium, the Netherlands and Western and Southern Germany, as well as in Northern Italy, the red colour indicating stable night lights as a proxy for population density dominates. The pentagon described by London-Paris-Milan-Munich-Hamburg is also one of the economically most powerful regions in the EU-15. In the CEE new Member States, densely populated areas shown as stable night lights are particularly prevalent in parts of the Czech Republic and Slovakia, Southern Poland and Hungary. In the remaining CEE regions, there are only a few red spots which originate from larger cities. In general, the dominating green colour in CEE is caused by lower population density and the lower economic level of development.

Map 2.1: Population density (inhabitants / km^2), 2000



Note: The number of regions in each category is given in parentheses.
Source: EUROSTAT's Newcronos Regio data.

Map 2.2: Europe's population distribution as estimated by stable night lights



Note: "This map is a combination of two maps: (1) a Global Land One-km Base Elevation (GLOBE) map with topographic color and shaded elevation relief with bathymetry from Smith and Sandwell; and (2) a map of stable lights (cities, villages, gas flares, etc.) from the Defense Meteorological Satellite Program. The colors from the original map images were edited for greater visual clarity. Please note that these are 2nd generation images of stable night lights, which allow distinction of artificial lights, gas flaring, and forest fires."

Source: HEILIG (2002).

Because of the observable differences in population density, a certain threshold for defining rural areas, as used by the OECD (below 150 inhabitants / km^2), is not suitable for each country. It might be appropriate to more densely populated countries like the Czech Republic, but include even most of the larger towns, and even cities, in sparsely populated countries like Estonia. Thus, one could consider reducing this threshold for the latter. In addition, what is included into a particular local community (NUTS 5), which is the basic unit for the OECD definition, may differ across countries. Furthermore, functional and structural aspects of rural areas are not included in this definition. However, the more complex the definition the higher the data requirements. And the more a definition is adapted to the specific situation of single countries, the lower the comparability. Therefore, despite the shortcomings of the OECD definition, it fulfils its task of enabling rough comparisons across countries. On the other

hand, this definition seems to be inappropriate for identifying regions which should be addressed by rural policy measures. For this purpose, more sophisticated definitions and classifications of rural regions are necessary. Just as EUROSTAT's definition does, these definitions should at least consider the vicinity of cities which provide income sources and infrastructure for commuters.

Table 2.1 lists the different approaches and definitions of rural areas in the CEECs. It is based on the expert survey and reveals that there is no uniform definition applied in all of the ten countries investigated. In some of them, national definitions are used, which are rather vague. Other countries such as Slovenia and Lithuania apply definitions in accordance with the OECD or EUROSTAT. Three countries have adjusted the OECD definition and decreased the ceiling from 150 inhabitants / km^2 to 120 inhabitants / km^2 (Hungary), and 100 inhabitants / km^2 (Czech Republic), respectively. Bulgaria added a certain absolute number of population in municipalities for the OECD definition. Thus, while interpreting figures for rural areas within this report, one should bear in mind that there are differences in the definition of rurality. Nevertheless, the statistical data collected in the expert survey are useful for comparing rural areas with the whole country as is done in chapter 4.

Table 2.1: Definitions for "rural area" applied in CEE new Member States

	Definition applied in CEE new Member States		
	National	**EUROSTAT**	**OECD**
EST	No definition. Local governments in the territory of towns are urban municipalities. Local governments in the territory of parishes are rural municipalities.		
LV	Rural areas are territories whose structure and landscape were created by long-term agricultural and forest management, a sparse distribution of population and infrastructure. Often, rural areas are defined territories with farmsteads, as well as villages and small towns.		
LT			X
PL	In national statistics, rural communes and rural parts of urban – rural communes are accounted as "rural areas".		
CZ	National commonly-used definition: communities with less than 2,000 inhabitants. Definition from European structural policy (Czech HRDP) – OECD definition: rural communities with a density of less than 100 inhabitants / km^2.	X	(X)
SK	For statistical purposes, rural areas are defined as residual areas, i.e., those which are "not-urban". The latter is defined at the municipality level (NUTS 5) and has to satisfy various criteria, e.g., number of inhabitants larger than 5,000, presence of a certain type of infrastructure, etc.		
H	There are no tabular statistics on rural areas. However, in a 5th framework project (QLK5-CT-1999-01526, co-ordinated by the University of Bonn) an estimation for rural areas was made. An expert team identified each of the 150 sub-regions, (NUTS 4) which of the OECD criteria they meet, and they distinguished 92 (predominantly and significantly) rural and 58 non-rural sub-regions. Nevertheless, due to the low population density of Hungary, the 150 inhabitants / km^2 ceiling was decreased to 120 inhabitants / km^2.		(X)
SLO		X	
ROM	In conformity with the Romanian Statistical Yearbook – 2002, urban area includes only municipalities and towns. Following this definition, rural area (communes and villages) is represented by total country area less urban area (municipalities and towns).		
BG	Municipality with a population of less than 30,000 people and a population density of less than 150 inhabitants / km^2.		(X)

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

In addition to the national definitions, all country experts classified *local communities* in accordance with the OECD criteria. The result shows that in all new Member States but Slovenia, more than 80% of the total number of local communities (NUTS 5) are classified as rural

(see Table 2.2). Although in the CEECs, 86% of the total area is, on average, characterised as rural, the share of inhabitants living in these areas from the total population averages no more than 43%. Only in the Czech Republic is the share of rural population high, with 76%, and, to a less extent, in Lithuania with 57%. The lowest shares of rural population are observable in Slovenia, with only 20%, and in Hungary and Poland with about a third. However, these numbers are still higher than the average share of rural population in the EU-15, which accounts for 18% by using the ceiling of 100 inhabitants / km^2.

Table 2.2: Percentage share of local communities (NUTS 5) defined as rural according to the OECD classification (less than 150 inhabitants / km^2)

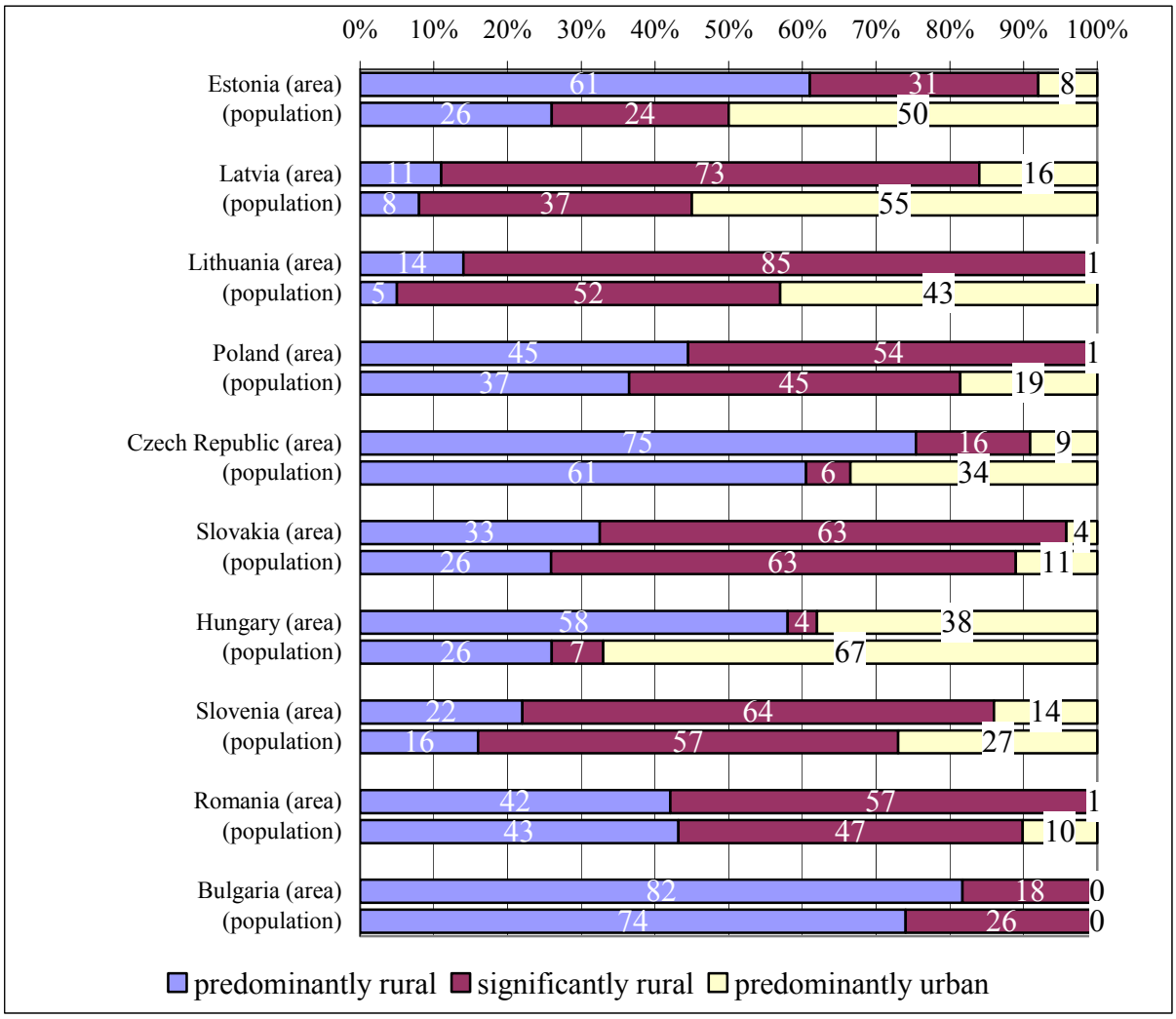
	EST	LV	LT [3]	PL	CZ [1]	SK	H [2]	SLO	ROM	BG	CEECs	EU [1]
Year	2000	n.a.	2001	2001	2001	2001	2000	2001	2001	2000	2000 / 2001	1997
% of total number of communities	83	n.a.	87	82	95	89	88	52	91	87	89	-
% of total area	92	n.a.	99	91	92	85	62	55	89	81	86	81
% of total population	50	n.a.	57	34	76	40	33	20	46	44	43	18

Notes: [1] EU and CZ: Population of local communities with a population density below 100 inhabitants / km^2.
[2] H: Population of local communities (NUTS 4) with a population density below 120 inhabitants / km^2.
[3] LT: NUTS 4.

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries. EUROPEAN COMMISSION, DIRECTORATE GENERAL FOR AGRICULTURE (1997).

For the *NUTS-3 regions*, the shares of area and population in the three regional OECD categories (predominantly rural, significantly rural, predominantly urban) have been calculated (see Figure 2.1). Differences in the share of rural areas between Table 2.2 and Figure 2.1 are conditional on the different spatial level (NUTS 5 and NUTS 3, respectively). In terms of their share of the total area, "predominantly *rural* regions" are the most important type of the respective country in Bulgaria (82%), the Czech Republic (75%), Estonia (61%) and Hungary (58%). In Lithuania, Latvia, Slovenia, Slovakia, Romania and Poland "*significantly rural* regions" dominate the area with above 50%. The share of "predominantly *urban* regions" in the total area is rather low. Not surprisingly, however, the share of urban regions in the total population is higher than that of the total area. More than half of the total population is living in these regions in Hungary, Latvia and Estonia, whereas in Bulgaria, Romania, Slovakia, Poland, Slovenia, the Czech Republic and Lithuania, the majority of all persons inhabit predominantly or significantly *rural* regions.

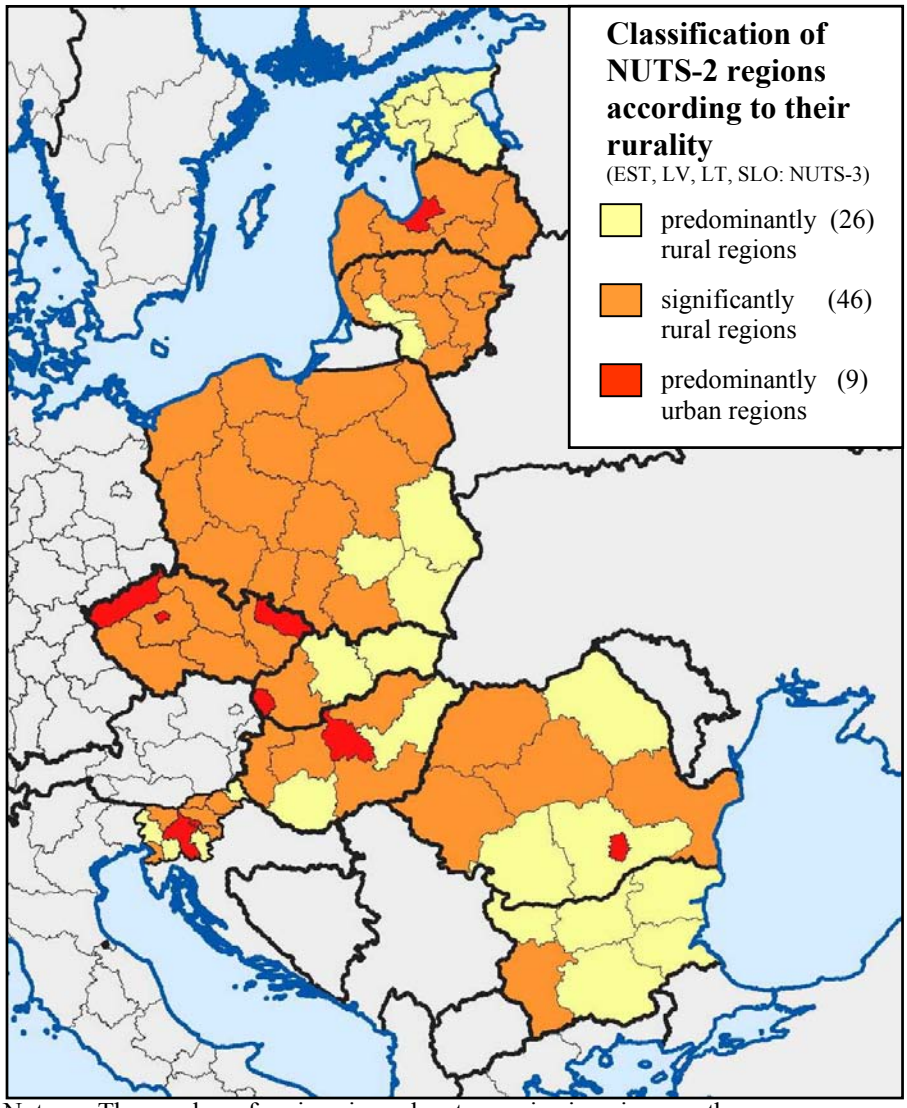
Figure 2.1: Share of predominantly rural, significantly rural and predominantly urban regions [1] in total population and total area, 2001 (BG, EST, H and SLO: 2000)



Note: [1] Regions are on NUTS-3 level except for LT, CZ, H (NUTS 4) and EST (NUTS 5).
Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Finally, the country experts also classified the *NUTS-2 regions* (Baltic states and Slovenia: NUTS-3 regions) according to the OECD categories. Map 2.3 shows that "predominantly rural regions" are dominant in Bulgaria and Estonia. Furthermore, they can be found in Romania, Hungary, Eastern Slovakia, Southeastern Poland, Slovenia and Lithuania. The capital regions and industrial areas of the Czech Republic are characterised as predominantly urban regions. The remaining regions belong to the medium category "significantly rural". According to this classification, 34% of the total area and 28% of the total population belong to predominantly rural regions; including the significantly rural regions, the shares increase to 97% of the area and 90% of the population. However, these shares strongly depend on the NUTS level used. Each of the NUTS-2 regions comprises a large area. In Poland, for example, all big cities are incorporated in "significantly rural regions" because of the extent of the respective NUTS-2 region, which also covers large rural areas. Thus, such a classification of NUTS-2 regions according to their rurality provides only a rough impression, since it neglects heterogeneity within a region. Thus, more detailed analyses require a categorization at a more disaggregated regional scale.

Map 2.3: Classification of regions according to their rurality (OECD definition)



Note: The number of regions in each category is given in parentheses.
Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

It can be stated that in the CEECs, as well as in the EU-15, a wide range of different definitions of rural areas exists. Due to the differences and peculiarities of the various countries, a universal approach of one single, detailed definition for all countries seems unreasonable. The OECD definition (as well as the EUROSTAT approach) provides a frame for international comparisons which can be extended or adapted. However, for the identification of rural areas to elaborate adjusted development measures, more sophisticated definitions and classifications of rural regions are necessary. As chapter 9 shows, a cluster analysis can be a useful tool for classifying regions based on several different characteristics of regions, e.g., socio-economic as well as demographic factors. Which definition or classification is the most adequate depends, in each case, on the specific purpose.

3 SITUATION AND DEVELOPMENTS OF FARM ECONOMIC PERFORMANCE AND ITS EFFECTS ON RURAL AREAS

With the accession of the CEECs, agriculture in the then enlarged EU will have different characteristics compared to the current situation. This is due to the differences in farm and plot sizes as well as farm ownership, labour productivity, yields and capital endowment between current and new Member States. All these factors will affect agricultural policies, for a more diversified agriculture will have to be taken into account. Structural policies of the EU will also be influenced by these developments, with the restructuring of agriculture impacting mainly rural areas: In these regions, the labour force leaving agriculture will seek new job opportunities. But the downstream sector is also affected, which is by and large located in urban areas.

An analysis of the farming situation and its changes in the CEECs is therefore of high importance for rural development. This chapter deals with this question. It focuses on the following issues:

- the current structure and performance of agricultural holdings,
- the current main sources of farm income and their future development,
- the expected development of the farm structure,
- expected changes in productivity,
- expected changes in farm gate prices,
- an assessment of the strengths, weaknesses, opportunities and threads with regard to agriculture in the new Member States.

The data provided in the questionnaires regarding agriculture allow a general picture to be drawn pertaining to the present situation, in terms of potential as well as performance, and to conclude on experts' expectations of future developments in agriculture in the new Member States. However, the information was at some points neither complete nor fully coherent, indicating a weaknesses of agricultural statistics in the countries analysed. Therefore, the figures presented in this chapter should be interpreted with care.

3.1 Current situation of agriculture

3.1.1 Farm structure and capital endowment

The farming sector in the new Member States is characterised by the existence of a large number of farms, the sum of which exceeds that of the current EU Member States by approximately 30%. On the other hand, the land they cultivate amounts to about 50 mill. ha, slightly less than 40% of that of the EU-15. This indicates a considerable potential due to the agricultural land cultivated and the number of operating farms (see Table 3.1). A breakdown of the farm structure by country is given in Table A-3.1.

Table 3.1: Farm structure by size and area of cultivated land in CEEC-10

	Unit	Farm groups				Total
		< 5 ha	5 to<20 [1)]	20 to<50 [2)]	Above 50	
No. of holdings	1,000	7,520	1,384	216	63	9,183
Share of total	%	82	15	2	1	100
Area cultivated	1,000 ha	13,319	13,035	4,557	18,672	49,584
Share of total	%	27	26	9	38	100
Average farm size	ha	1	9	32	280	5

Notes: [1)] BG and SK 5 to <10, H <10. [2)] BG, H and SK 10 to <50.
Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Of the total number of approximately 9.2 million farms, the group with the smallest holdings by size of land cultivated (below 5 ha) dominates in number, (82%) but not with regard to the share of used farm land (27%). The majority of them should be classified as subsistence or part-time farms which cannot provide sufficient income for the farm household. Hence, off-farm activities or social payments are required for receiving additional income. Over a long period, most of these holdings are probably unable to survive. Only a few of them may grow to a size at which they become fully commercialised. The grouping based on farm size measured by the area cultivated is not an unambiguous indicator regarding the economic situation of a farm. Farms with a few hectares but specialising in the production of pig, poultry, fruits and/or vegetables may achieve excellent economic results, though the majority of the holdings in this size group do not. Usually, only a few farms included in the smallest size cluster generate rather large gross revenue and earn most of the farm family income from agricultural activities.

The larger is the group's average farm size, the lower the share of the number of farms belonging to it and the bigger the share in the land they cultivate. Details on a country basis are provided in Table A-3.1. Farms of medium size (5 to 20 ha) cultivate the same share of land as those belonging to the group with the smallest size. However, in terms of number, the former is 5 times smaller than the latter. These farms, with an average size of 9 ha, have a potential both to earn a substantial part of the farm family income from agricultural production and to grow in the future so as to remain economically viable. Farms belonging to the cluster of 20 – 50 ha may have a better chance of being fully commercially-oriented, whilst the last cluster (above 50 ha) includes mainly large-scale commercial companies and co-operatives.

Regarding long-term survival, the chance is higher for those holdings which are currently endowed with sufficient land and/or capital on which an expansion may be based. This is likely the case with farms cultivating 20 ha or more. Nevertheless, smaller enterprises may also have a future depending on the then existing circumstances: Though many factors determine the chances and ability to expand, the more important ones are the availability of land for renting or buying, easy access to the capital market, the managerial capacity of the farm operator and off-farm job opportunities. Often, the continuation of farming is also influenced by whether an offspring wants to take over the operation. In any case, substantial structural adjustments are required in almost all of the CEECs to make farmers participate in income growth similar to what the non-farming population will experience.

Table 3.12 indicates the financial situation of farms broken down by group size. It shows that farm income is often still far below that level which does not require complementary off-farm employment. This becomes obvious when the figures on farm income are compared with the average gross domestic product (GDP) per inhabitant. The latter is a proxy for the income a

person obtains in the respective country (see chapter 4 for the regional distribution of the GDP).

Some similarities, as well as substantial differences, can be found between countries regarding farm structure. The share of small holdings (< 5 ha) in the total number of farms is high in all countries analysed. It ranges from 42% in Latvia to 97% in Bulgaria. Though the kind of privatisation influenced the structure of agriculture at the beginning of transition, in subsequent years many other factors determined it, too. Chief among those factors is profitability of agriculture and off-farm job opportunities. Lack of the latter strongly influenced the large share of small farms in e.g., Bulgaria (97%), Hungary (94%) and Romania (93%).[4] Many persons who lost their work place in industry or the service sector started to farm the small land size they were given in the privatisation phase. Patterns in land use by different farm groups vary (see Table 3.2). In five of the CEECs the farms exceeding 50 ha cultivate more than 50% of total agricultural land. In Czech Republic (92%) and in Slovakia (94%), this share is highest among all these countries. It is lowest in Slovenia (8%), Lithuania (10%) and Romania (18%).

Table 3.2: Average size of all farms as well as share of small and large farms in total land cultivated by country

Country	Average farm size (ha)	Share of cultivated land in size group below 5 ha	Share of cultivated land in size group above 50 ha
Estonia	12	9%	56%
Latvia	12	9%	31%
Lithuania	4	31%	11%
Poland	8	16%	25%
Czech Republic	100	1%	93%
Slovakia	31	2%	96%
Hungary	4	18%	58%
Slovenia	6	46%	8%
Romania	2	58%	19%
Bulgaria	4	19%	75%
Total	5	27%	38%

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

In Romania, Lithuania and Slovenia the farms belonging to the lowest size bracket dominate the agricultural sector and their average farm size is among the smallest of the countries considered. Due to the large number of small holdings, Bulgarian and Hungarian agriculture is also characterized by a very low average farm size. At the same time, in both countries the share of land cultivated by holdings belonging to the cluster of large farms remains high. Similarly, small- and large-scale farms coexist in Poland and Latvia, whilst in Estonia, the Czech Republic and Slovakia, agricultural land is operated mostly by large farms.

The dual farm structure is undoubtedly one of the specific features of agriculture in the CEECs. This holds with regard to size of the farms – as described above – having many small

[4] Furthermore, the number of farms crucially depends on the minimum requirement to be classified as a farm at all. These minimum requirements are not identical in all new Member States. What is called a small or "subsistence farm" in some countries could include what is named "garden plots of non-agricultural households" in other countries. For example, according to the official statistics in Hungary, a farm is defined as a holding which has either at least 1,500 m² of productive land, or at least 500 m² of orchard and/or vineyard, or intensive horticulture under glass or plastic, or at least one large animal (cattle, pig, horse, sheep, goat, etc.), or a stock of at least 50 poultry, or a stock of at least 25 smaller animals (rabbit, furry animals, pigeons), or a stock of at least 5 bee families. If the minimum requirement for farms were increased to 1 hectare as in several EU Member States, the current number of individual farms in Hungary would fall from 960,000 to 270,000.

ones, which are often subsistence or part-time-oriented, and very large enterprises. Duality is also observed in terms of ownership, as Table 3.3 shows. This table summarizes the structure of farms with respect to their legal type. In addition, land fragmentation is another dual characteristic of CEECs` agriculture. The large holdings cultivate considerable lot sizes, while the small ones operate on very small plots; too small to use large machinery. Hence, structural improvements also include the development of larger plot sizes. This encompasses changes in fragmented ownership as well.

In all countries, the privatisation processes have almost completely wiped out state farms. Large-scale farming is still, however, an important feature of agriculture in a number of the new Member States. High shares in total land cultivated by co-operatives and commercial companies characterizes the farm sector in Slovakia, (76%) Bulgaria, (74%) the Czech Republic (72%) and Hungary (50%) (see Table 3.3).

On the other hand, in Romania, 86% of the agricultural land is operated by individual farms (including household plots, which reach quite a substantial share in land use in some of new Member States). An even slightly higher share is cultivated by these farms in Slovenia, (94%) Latvia (90%) and Poland (86%).

Table 3.3: Number of different legal type farms and their share in agricultural land use

	Legal type of farms	Number of farms	Share in use of agricultural land, in %
Estonia, 2001	State undertakings	76	0
	Co-operatives	-	-
	Commercial companies, total	1,003	37
	Individual farms /operating farms/	67,984	62
Latvia, 2001	State undertakings	127	1
	Co-operatives	-	-
	Commercial companies, total	477	9
	Individual farms /operating farms/	37,618	49
	Household plots	96,525	39
	Other	6,088	1
Lithuania, 2001	State undertakings	132	0
	Co-operatives	-	-
	Commercial companies, total	697	4
	Individual farms /operating farms/	330,602	74
	Other	274,591	21
Poland, 2001	State undertakings	-	-
	Co-operatives	314	1
	Commercial companies, total	550	11
	Individual farms /operating farms/	1,885,000	83
	Household plots	450,000	2
Czech Republic, 2001	State undertakings	-	-
	Co-operatives	728	28
	Commercial companies, total	2,055	43
	Individual farms /operating farms/	35,219	26
	Other	168	1

	Legal type of farms	Number of farms	Share in use of agricultural land, in %
Slovakia, 2001	State undertakings	1	0
	Co-operatives	695	46
	Commercial companies, total	707	29
	Individual farms /operating farms/	5,292	7
	Household plots	n.a.	16
Hungary, 2000	State undertakings	-	-
	Co-operatives	1,886	50
	Commercial companies, total	9,479	
	Individual farms /operating farms/	949,005	49
Slovenia, 2000	State undertakings	-	-
	Co-operatives	-	-
	Commercial companies, total	103	5
	Individual farms /operating farms/	86,324	94
Romania, 2000	State undertakings	-	-
	Co-operatives	-	-
	Commercial companies, total	4,376	13
	Individual farms /operating farms/	4,170,000	80
	Other	6,494	6
Bulgaria, 2001	State undertakings	-	-
	Co-operatives	2,900	51
	Commercial companies, total	2,400	23
	Individual farms /operating farms/	763,500	26

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

The dominance of small farms in terms of numbers raises some questions concerning the competitiveness, economic efficiency and viability of a large part of agriculture in the long run. These farms may be an advantage in the short term due to their role as a social buffer (cf. section 4.4). But in the long run, they will have to adjust if they want to keep up with income development elsewhere in the economy. Duality of the farm sector makes any coherent policy support for structural adjustment rather difficult. It also hampers the implementation of the CAP.

Besides land and labour, the capital stock is also important for the further development of a farm. While land and labour are abundantly available to agriculture in some CEECs, capital is not. Yet, it is essential for labour productivity and the economic performance of farms. However, due to problems with national agricultural statistics and the not yet fully-implemented FADN scheme, complete and fully reliable data on capital stock are lacking. Nevertheless, in Table 3.4, some crude estimates are provided.

Of the countries listed in Table 3.4, Polish, Hungarian and Czech farms are much better endowed with capital than those in Slovakia, Lithuania and Estonia. As could be expected, the value of assets per hectare diminishes as the farm size increases. The exceptionally high asset values of the smallest farms in Hungary and the Czech Republic are due to the fact that this size group includes a number of very capital intensive farms operating with very little agricultural land. These are large-scale pig fattening and poultry farms. In Slovakia, the value of assets per hectare on individual farms is about two times lower than those of legal persons, which may be a disadvantage for the former.

The high value of assets per hectare on small farms is largely due to the considerable quantity of fixed assets. This raises doubts regarding their productivity. However, as various studies show, particularly for Poland, small and medium sized farms are usually over-equipped.

However, their capital stock, especially machinery and buildings, is largely depreciated and out-of-date. Hence, it is not sure whether these fixed assets are still used much in production or are more or less a statistical reminder. On the other hand, large farms use modern, labour saving technologies, i.e., high quality and efficient machines.

Table 3.4: Endowment of farms with capital – value of assets per hectare of agricultural land (in EUR/ha)

	Unit (if not stated otherwise)	Farm size group (ha)						
		< 5	5 to 20	20 to 50	50 to 100	100-1000	>1000	Total
Estonia, 2001	Total assets	2,253	2,103	1,029	879	722	-	838
	Fixed assets	1,795	1,989	896	703	420	-	607
	Financial assets	458	114	133	176	302	-	231
Lithuania, 2001	Unit	< 10 ha	10 to<20	20 to<50	50 to <100	100 to< 1000	>1000 (companies)	
	Total assets	3,052	1,942	1,273	967		796	
	Fixed assets	1,646	1,211	798	612		318	
	Financial assets	640	186	112	102		110	
	Working capital (cash and bank deposits)	355	161	77	64		23	
Poland, 2001	Total assets	12,041	5,127	4,210	3,635	2,347	-	4,291
	Fixed assets	10,947	4,571	3,645	3,040	1,804	-	3,760
	Financial assets	718	229	312	318	269	-	280
	Working capital	11,948	4,993	3,982	3,292	1,968	-	4,058
Czech Republic, 1999	Total assets	1,090,864	2,220	1,678	1,509	1,216	1,331	1,340
	Fixed assets	84,470	1,684	1,295	1,164	827	840	857
	Financial assets	-	-	-	-	-	-	-
	Working capital	1,006,395	536	383	345	382	479	472
Slovakia – legal persons, 2001	Total assets					1,012	1,025	1,031
	Fixed assets					606	634	635
	Financial assets					17	26	25
	Working capital					371	348	354
Slovakia – natural persons, 2001	Unit			< 50 ha	50 to<100	100-500	> 500	Total
	Total assets			543	581	530	524	535
	Fixed assets			272	337	294	270	289
	Financial assets			135	132	118	116	120
	Working capital			136	110	117	137	124
Hungary, 2000	Total assets	70,800	2,765	1,570	1,975	1,405	910	1,186
	Fixed assets	34,139	1,691	960	1,108	710	352	547
	Financial assets	241	0	0	1	20	29	24
	Working capital	38,912	2,423	1,383	1,294	929	498	736

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Although there are no statistics on capital endowment for Romania, it is to be emphasized that the productive capital of this country's farms is rather insufficient. There is a lack, e.g., of irrigation systems, drainage control systems, dam water systems; all of which have yield-increasing effects. This may lead to a further deterioration of capital, especially in vineyards and orchards, and can decrease the number of livestock. This insufficiency is characteristic of all farm types in Romania.

3.1.2 Economic performance of farms

Of all countries for which economic indicators were provided, the average value of total sales was, in Hungary, with 1,013 EUR/ha, the highest; Poland and the Czech

Republic reached three quarters of that, with 760 EUR/ha, and 774 EUR/ha, respectively. In the other countries reporting, it was much lower and ranged from 347 EUR/ha in Latvia to 542 EUR/ha in Slovakian legal person farms (see

Table 3.5). Although there is no common pattern, in the majority of the countries smaller farms generate higher output per hectare, which diminishes with the increase of farm size. This is typically a consequence of decreasing intensity of farm organization with farm size. However, in some cases in the largest farms, the total output is high, which suggests that these farms, which usually use more advanced technologies, can be more effective than smaller farm holdings. Unusually high values of total output in farms smaller than 5 hectares in Hungary and the Czech Republic stem from the specificity of this cluster in the two countries, with a large number of poultry and pig industrial farms with a high concentration of animals.

It should be pointed out that both subsidies and taxes in all new Member States are very low (cf. chapter 8). The Gross and Net Value Added are positive in all farm size clusters, except the largest farms in Lithuania.

Table 3.5: Economic indicators (EUR/ha)

		Farm size clusters (ha)						
	Unit (if not stated otherwise)	**< 5**	**5 – 20**	**20 – 50**	**50 – 100**	**100-1000**	**> 1000**	**Total**
Estonia, 2001	Total output	2,547	625	315	392	575		468
	Intermediate input	1,139	307	183	229	369		291
	Gross value added	1,408	318	132	163	206		177
	Depreciation	218	63	37	33	37		36
	Subsidies	14	11	18	24	29		25
	Taxes	255	44	18	19	105		65
	Net Value Added at factor costs	949	222	95	136	93		101
Latvia, 2001	**Unit**		**<25**	**25 – 50**	**50 – 100**	**>100**		**Total**
	Total output		413	284	269	358		347
	Intermediate input		235	210	177.	275		263
	Gross value added		178	73	92	83		84
	Depreciation		41	17	29	52		48
	Subsidies		13	24	32	57		52
	Taxes		6	7	4	5		5
	Net Value Added at factor costs		144	73	91	83		84
Lithuania, 2001	**Unit**	**<10**	**10 – 20**	**20 – 50**	**50 – 100**		**>1000**	**Total**
	Total output	1,055	619	527	431		598	474
	Variable cost	387	261	224	192		367	217
	Gross margin	669	358	303	239		231	256
	Fixed cost and VAT	339	216	168	140		479	n.a.
	Subsidies	23	15	15	25		84	n.a.
	Taxes	0	0	0	0		0	n.a.
	Profit	353	157	151	125		-164	n.a.
Poland, 2001	Total output	1,160	1,237	1,035	990	783		760
	Intermediate input	762	683	580	558	446		518
	Gross value added	398	554	455	431	337		243
	Depreciation	226	167	120	110	69		n.a.
	Subsidies	2	5	6	9	3		n.a.
	Taxes	18	14	9	9	9		8
	Net Value Added at factor costs	155	378	332	322	262		n.a.

		Farm size clusters (ha)						
	Unit (if not stated otherwise)	**< 5**	**5 – 20**	**20 – 50**	**50 – 100**	**100-1000**	**> 1000**	**Total**
Czech Republic, 1999	Total output	179,010	775	632	632	639	805	773
	Intermediate input	154,517	613	505	475	476	600	579
	Gross value added	24,492	162	126	157	163	205	194
	Depreciation	8,412	99	72	78	86	88	88
	Net Subsidies	106	35	32	32	37	40	38
	Net Value Added at factor costs	16,187	98	86	110	114	157	144
Slovakia –Legal persons, 2001	Total output					602	526	542
	Intermediate input					446	367	381
	Gross value added					156	159	160
	Depreciation					57	65	64
	Subsidies					104	97	98
	Taxes					10	9	9
	Net Value Added at factor costs					192	182	184
	Unit			**< 50**	**50 - 100**	**100 - 500**	**> 500**	**Total**
Slovakia - Natural Persons, 2001	Total output			479	498	418	436	437
	Intermediate input			270	197	219	259	234
	Gross value added			202	258	171	157	178
	Depreciation			259	321	250	260	262
	Subsidies			73	69	69	95	73
	Taxes			n.a.	n.a.	n.a.	n.a.	n.a.
	Net Value Added at factor costs			n.a.	n.a.	n.a.	n.a.	n.a.
Hungary, 2000	Total output	89,452	1,906	848	947	1,119	890	1,013
	Intermediate input	78,394	1,458	586	669	851	695	781
	Gross value added	11,058	448	262	278	268	195	232
	Depreciation	2,349	149	76	81	64	43	55
	Subsidies	2,004	63	54	48	66	51	56
	Taxes	261	19	15	15	11	2	6
	Net Value Added at factor costs	10,452	343	225	230	259	201	227

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

The situation in agriculture in the new Member States is difficult to assess. The large number of small farm holdings, which provide insufficient incomes for farmers' families, is one of the particular features in most of the countries. However, not only farms in the smallest size group earn a small income. This holds, in general, for the average of all farms, as can be seen in Table 3.6 which depicts the average farm income either as net farm income or as personal income. For comparison, annual gross wages and GDP per capita are also listed. With the exception of Estonia and the Czech Republic, farmers in all other CEECs reported in this table earn less than the average worker. In some countries, the differences between these two income figures are enormous, e.g., Latvia. However, this comparison can provide only a rough indication of the income situation between farmers and the non-farming population. This is due to the fact that net farm income does not account for all non-agricultural income sources from which a farm family may receive financial support. Therefore, personal income for a farm family is a better measure for this comparison. On the other hand, farm family income is contrasted to annual gross wages, which reflect the income of only one person, while more than one of a farm family may be engaged in gainful activities. As imprecise as this comparison may be, it indicates that earnings in agriculture are considerably lower than in other sectors of the economy.

In order to improve their financial situation, farms have to increase their production. This can be reached through using current production factors more intensively, i.e., increasing yields. Another way is to use more land and/or capital. The CEECs are well-endowed with land per inhabitant. This seems to offer chances for expansion. However, the large labour force still

employed by agriculture places the land-labour ratio of the CEECs, at 6.6, considerably below that of the average in the EU-15, which is 19.3. This is indicative of the need to reduce the agricultural labour force in order to improve farm income.

Table 3.6: Average income per farm, annual gross wages and GDP per capita in 2001

	Average income per farm (EUR)	Annual gross wages (EUR)	GDP per capita	
			(EUR PPP)	(% of EU-15 average)
Estonia	4,320 [1)]	3,936	8,500	38
Latvia	2,148 [1)]	3,360	6,600	29
Lithuania	465 [2)]	3,600	6,600	29
Poland	2,197 [1)]	6,684	8,700	39
Czech Republic	11,302 [1)]	5,160	13,500	60
Slovakia	105,960 [1)]	3,420	10,800	48
Hungary	2,673 [3)]	4,836	11,700	52
Slovenia	5,589 [1)]	11,856	16,100	72
Romania	n.a.	1,980	6,000	27
Bulgaria	n.a.	1,524	5,400	24

Notes: [1)] Net Farm Income (NFI) in EUR/farm. [2)] Net Farm Income (NFI) in EUR/ha. [3)] Personal Income (PI) in EUR/farm.

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

3.2 Assessment of future developments in agriculture

In the following, the expectations of the country experts regarding future developments of farm structure, as well as average farm gate prices and yields in comparison with the EU-15 average are discussed.

3.2.1 Expected development of farm structure

Agricultural and structural policies in the CEECs that will be implemented after accession to the EU may bring about structural changes and an increase in productivity that will be limited in the short run and more pronounced in the longer term. Country experts expect that by 2007, some shifts of agricultural land between farms from different farm size groups will have taken place (see Table 3.7).

There is a strong expectation among experts that in the next few years, the number of smallest farms will decrease; and, to an even larger extent, agricultural land will be moved to larger holdings. Estonia is the only exception, where after the completion of land reform, the number of smallest holdings is predicted to increase.

The net balance of changes in the group between 5-20 ha is close to zero. A significant increase, both in the number of farms and the area cultivated, is expected to occur with regard to large farms. The relative increase in the number of farms between 20-50 and 50-100 hectares will be the most striking. Farms over 1,000 ha are only expected to increase their number and land share in the Czech Republic, whereas this size cluster is expected to lose importance in Hungary, Bulgaria and Slovakia. In all countries, concentration in the farming sector is expected to deepen. But this process will depend on the initial farm structure; the greater the share of large farms, the more land should go to clusters with a larger size.

Table 3.7: Expert judgement on development of farm structure according to different farm size clusters till 2007 ("+" is an increase, "0" no change, "–" a decrease)

		Farm size clusters (ha)					
		< 5	**5 - 20**	**20 - 50**	**50 - 100**	**100 - 1000**	**> 1000**
Estonia	No. of holdings	+	+	0	0	0	n.a.
	Area cultivated	–	–	0	+	+	n.a.
Latvia	No. of holdings	–	0	+	+	+	n.a.
	Area cultivated	–	0	+	+	+	n.a.
Lithuania	No. of holdings	–	+	+	+	0	n.a.
	Area cultivated	–	+	+	+	–	n.a.
Poland	No. of holdings	0	–	+	+	0	0
	Area cultivated	–	–	+	+	0	0
Czech Republic	No. of holdings	0	–	–	+	+	+
	Area cultivated	0	–	–	+	+	+
Slovakia	No. of holdings	0	–	+	+	+	0
	Area cultivated	0	–	+	+	+	–
Hungary	No. of holdings	–	0	+	+	+	–
	Area cultivated	–	0	+	+	+	–
Slovenia	No. of holdings	–	+	+	0	0	0
	Area cultivated	–	+	+	0	0	0
Romania	No. of holdings	–	0	+	+	+	0
	Area cultivated	–	0	0	+	+	0
Bulgaria	No. of holdings	0	+	+	+	+	–
	Area cultivated	–	+	+	+	+	–
Average strength and direction of change in number of holdings [1)]		-4	1	7	8	6	-1
Average strength and direction of change in area cultivated [1)]		-8	-1	6	9	6	-2

Note: [1)] Average over all countries with "–" = -1, "0" = 0, "+" = 1.
Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

The predicted pattern regarding change in farm structure by legal type is less clear (see Table 3.8). Experts expect, for 2 of the 4 countries where state farms still exist, a further reduction of their importance as a result of the continuation of privatisation processes. Similarly, co-operative farms are predicted to decrease in number as well in their share of cultivated land. This is due to the expected expansion of commercial companies and individual farms. This development is predicted for a number of countries where presently the position of co-operatives is very strong (Czech Republic, Hungary, Bulgaria, Slovakia). The only exception in the opinion of the country experts is Romania, where both commercial and co-operative farms are expected to strengthen their position at the expense of individual farms.

In six of the new Member States, structural changes will likely lead to an increase in the share of individual farms in overall land use. The direction of changes in individual farming in Poland, Hungary and Lithuania is a reduction in the number of holdings and an increase of the average farm size and share of the total area of agricultural land. In Slovakia, Bulgaria and the Czech Republic, where individual farming has the weakest position, an increase in the number of individual farms is also expected. For Romania and Latvia, the experts expect that individual farms will lose importance.

Table 3.8: Expert judgement on development of farm structure according to legal type till 2007 ("+" is an increase, "0" no change, "–" a decrease)

		State under-taking	Co-operatives	Commercial companies	Individual farms
Estonia	Number of farms	–	n.a.	–	+
	Agricultural land in ha	–	n.a.	0	+
	Average farm size in ha	0	n.a.	+	–
	Share of total agricultural land in %	0	n.a.	n.a.	0
Latvia	Number of farms	0	n.a.	+	–
	Agricultural land in ha	0	n.a.	+	–
	Average farm size in ha	0	n.a.	+	0
	Share of total agricultural land in %	0	n.a.	+	–
Lithuania	Number of farms	–	0	–	–
	Agricultural land in ha	–	0	–	+
	Average farm size in ha	–	0	0	+
	Share of total agricultural land in %	–	0	–	+
Poland	Number of farms	–	–	0	–
	Agricultural land in ha	–	–	0	+
	Average farm size in ha	–	0	0	+
	Share of total agricultural land in %	–	–	0	+
Czech Republic	Number of farms	n.a.	–	+	+
	Agricultural land in ha	n.a.	–	+	+
	Average farm size in ha	n.a.	0	0	+
	Share of total agricultural land in %	n.a.	–	+	+
Slovakia	Number of farms	0	–	+	+
	Agricultural land in ha	0	–	+	+
	Average farm size in ha	0	–	+	+
	Share of total agricultural land in %	0	–	+	+
Hungary	Number of farms	n.a.	–	+	–
	Agricultural land in ha	n.a.	–	+	+
	Average farm size in ha	n.a.	–	–	+
	Share of total agricultural land in %	n.a.	–	+	+
Slovenia	Number of farms	n.a.	n.a.	0	–
	Agricultural land in ha	n.a.	n.a.	0	–
	Average farm size in ha	n.a.	n.a.	0	+
	Share of total agricultural land in %	n.a.	n.a.	0	0
Romania	Number of farms	n.a.	+	+	–
	Agricultural land in ha	n.a.	+	+	–
	Average farm size in ha	n.a.	+	+	+
	Share of total agricultural land in %	n.a.	+	+	–
Bulgaria	Number of farms	n.a.	–	+	+
	Agricultural land in ha	n.a.	–	+	+
	Average farm size in ha	n.a.	–	+	+
	Share of total agricultural land in %	n.a.	–	+	+
Strength and direction of change in number of holdings [1)]		–3	–4	+4	–2
Strength and direction of change in area cultivated [1)]		–3	–4	+5	+5
Strength and direction of change in average farm size [1)]		–1	–2	+4	+7
Strength and direction of change in share of total agricultural land [1)]		–2	–4	+6	+4

Note: [1)] Sum over all countries with "–" = -1, "0" = 0, "+" = 1.

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

The future development of the farm structure and employment in agriculture is dependent on many factors. Among them are the expected earnings in agriculture, which are influenced by agricultural policy. However, the opportunity costs of labour of those engaged in agriculture are even more important for deciding to stay in agriculture or to leave the sector. They are dependent on the availability of off-farm income opportunities, the age structure and the endowment with human capital. There is evidence in many current EU Member States that general economic development is more decisive for structural change in agriculture than the economic situation in this sector itself. The same probably also holds for the new Member States. The rural economy, the age structure of people living in these areas, and their educational level are discussed in more detail in chapter 4.

3.2.2 Expected development of farm gate prices relative to those in the EU-15

In 2000, average farm gate prices of the main agricultural commodities in the new Member States were below the EU-15 average. However, considerable deviations could be observed both with regard to commodities and countries. Table 3.9 provides an overview of the average price in all 10 CEECs relative to that of the EU-15, as well as the two largest deviations by country.

Table 3.9: Average, as well as lower and upper range, of CEECs farm gate prices relative to the EU-15 average price for main commodities in 2000 (%)

	Price and country				
	Average	**Minimum**	**Country**	**Maximum**	**Country**
Wheat	93	75	Czech Republic	130	Slovenia
		75	Slovakia	110	Poland
Barley	79	62	Czech Republic	108	Poland
		69	Slovakia	100	Slovenia
Rye	88	70	Slovakia	110	Slovenia
		77	Czech Republic	99	Latvia
Maize	91	71	Romania	110	Slovenia
		82	Slovakia	98	Poland, Bulgaria
Sugar	84	64	Slovakia	105	Slovenia
Rapeseed	89	65	Romania	106	Poland
		72	Estonia	105	Hungary
Milk	69	50	Lithuania, Estonia	100	Slovenia
		52	Latvia	82	Hungary, Romania
Beef	49	33	Lithuania	72	Czech Republic
		36	Slovakia	70	Poland
Pork	92	72	Slovakia	120	Latvia
		78	Romania	108	Lithuania
Poultry	82	48	Slovakia	102	Latvia
		53	Hungary		Lithuania

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Though the prices reported in this table are not adjusted for quality differences, the numbers indicate that, in 2000, quite considerable deviations existed between the new Member States and the EU-15. These observations also show substantial price disparities among the CEECs. Though a general pattern cannot be noticed, crop and milk prices in Slovenia are among the highest, and in some cases substantially above, the averages in the EU-15. Crop prices were also above EU-15 levels in Poland and Hungary. On the other hand, they were especially low in the Czech Republic and Slovakia. There was a striking difference with regard to milk and

beef prices between the EU-15 and the CEECs. The latter only reached 33% of the average EU-15 price in Lithuania and 36% in Slovakia. And in the two countries with the highest beef prices, farmers only received 72% (Czech Republic) and 70% (Poland) of the average price in the EU-15. Milk was cheapest in the Baltic republics (Latvia, Lithuania, Estonia), while the highest prices were reported in Slovenia, Hungary and Romania. The highest pork and poultry prices in the CEECs reached the approximate EU-15 average. The lowest ones, however, were also strikingly below the corresponding EU-15 level.

Lower quality, oversupply and low production costs are most commonly listed as the main reasons for the deviation from the EU average price level. Another reason is the competitiveness of the food processing and marketing sector, which is often still rather low. Many countries continue to experience excess capacity, particularly in primary processing sectors such as meat and dairy processing, as well as grain milling (see chapter 6 and EUROPEAN COMMISSION, DIRECTORATE GENERAL FOR AGRICULTURE 2003); the countries are currently in the process of modernising or closing down food processors in order to comply with the *acquis communautaire*. Physical infrastructure such as transport provides access to input and output markets, and thus also influences farm gate prices. As discussed in chapter 5, particularly in mountainous and/or sparsely populated areas in the new Member States, the infrastructure is underdeveloped and induces high transportation costs.

Table 3.10 shows that experts expect the prices of main commodities to come rather close or equal to the EU-15 average in the next few years. This may be a realistic prediction, assuming the upward trend in the new Member States is going to continue as a result of CAP implementation. Furthermore, improvements in product quality are to be expected, partly due to higher standards imposed by EU regulations. In addition, improvements in the food processing sector could lead to a reduction of processing and marketing costs and increased demand.

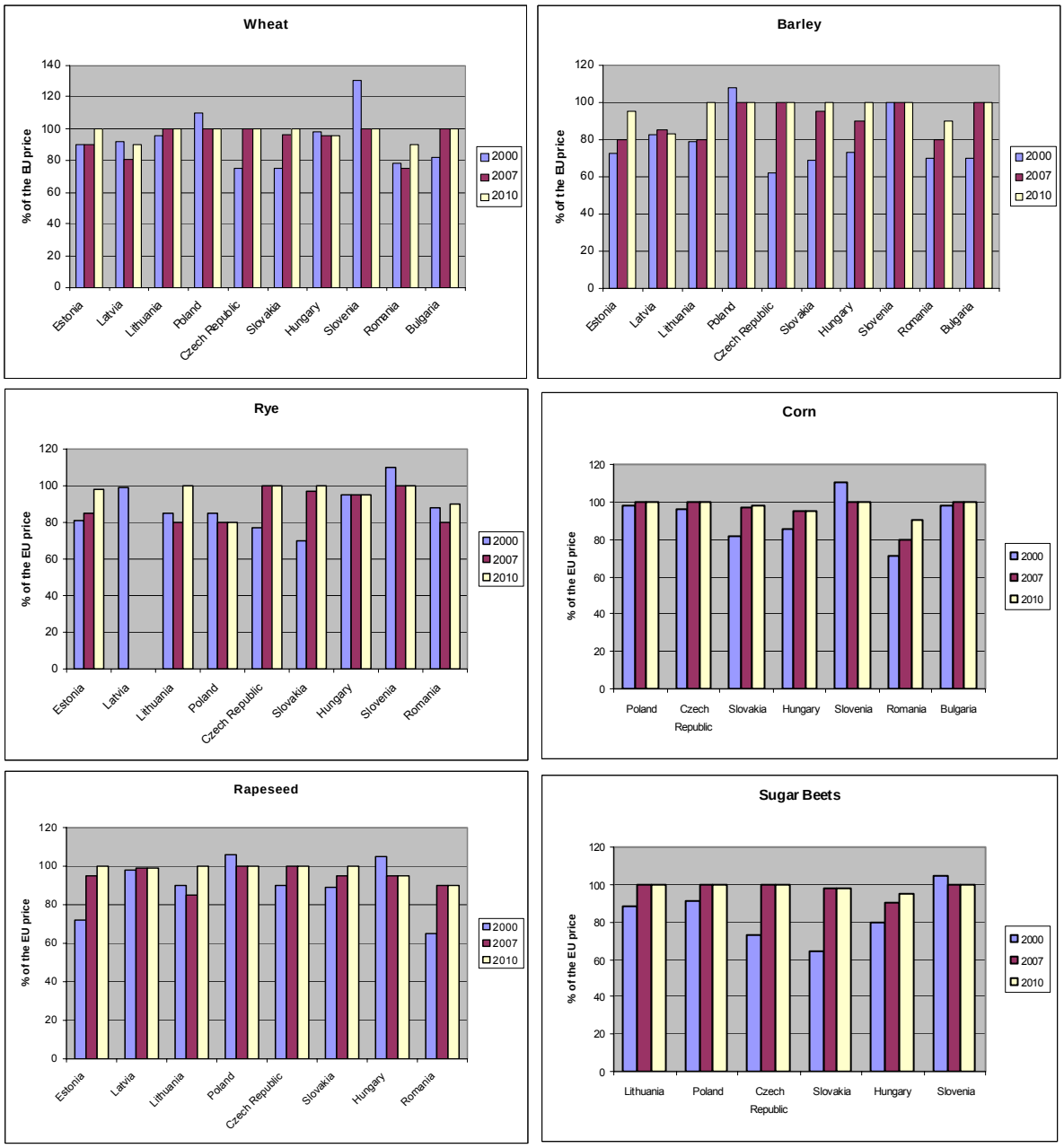
Table 3.10: Average farm gate prices of all CEECs as observed in 2000, and expected for 2007 and 2010 relative to the corresponding EU-15 average price for main commodities (in %)

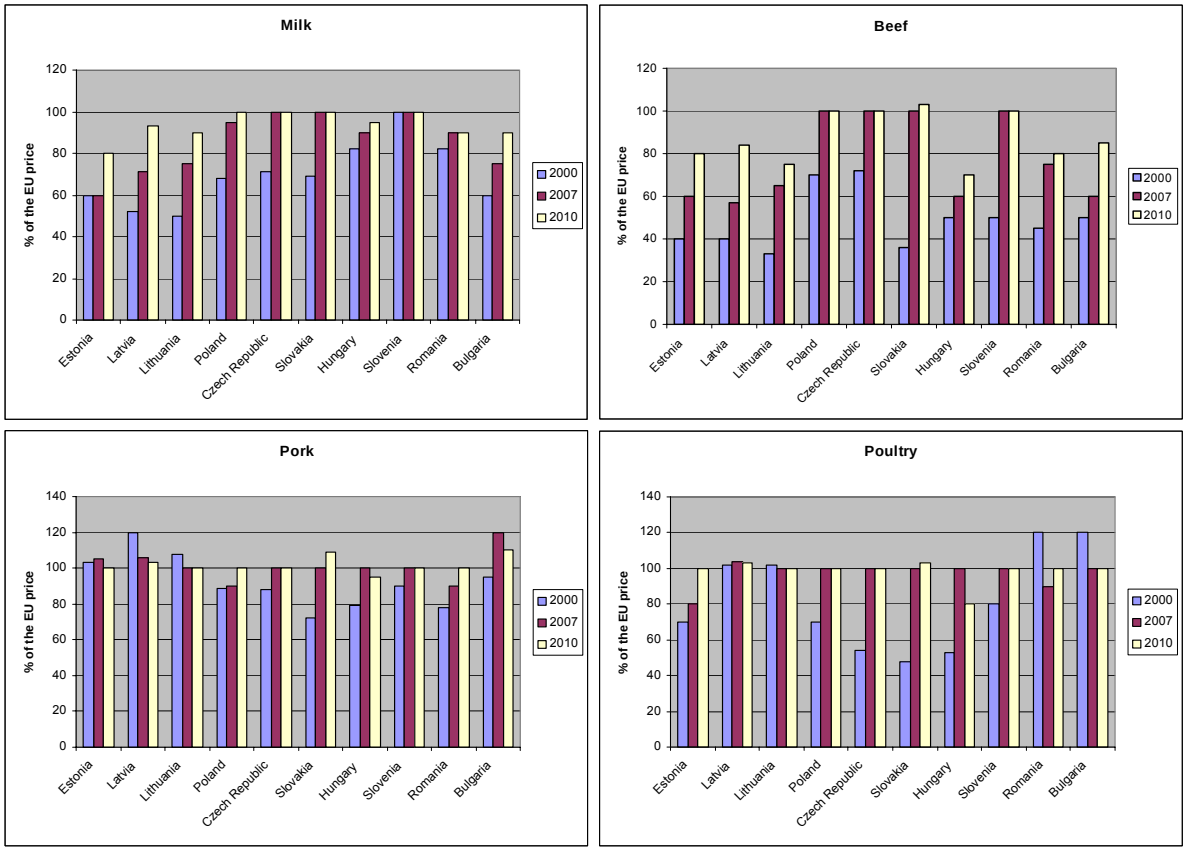
Commodity	Year		
	2000	2007	2010
Wheat	93	94	98
Barley	79	91	97
Rye	88	80	85
Corn	91	96	98
Rapeseed	89	95	98
Sugar	84	98	99
Milk	69	86	94
Beef	49	78	88
Pork	92	101	102
Poultry	82	97	99

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Figure 3.1 shows the relations between observed prices in 2000 and expected prices for all major commodities, and for all countries in 2007 and 2010 relative to the (observed or expected) EU-15 average. For most crop products, the majority of the country experts expect that the price gap will disappear, at least by 2007. Particular exceptions are Estonia, Latvia and Romania. Price convergence for milk and beef is less pronounced. For example, according to the Estonian estimations, these prices will only reach 60% (2007) and 80% (2010) of the EU-15 average. The expectations are similar for Latvia, Lithuania and Hungary.

Figure 3.1: Average farm gate prices for main commodities as observed in 2000, and expected for 2007 and 2010 in the CEECs relative to the EU-15 average (%)





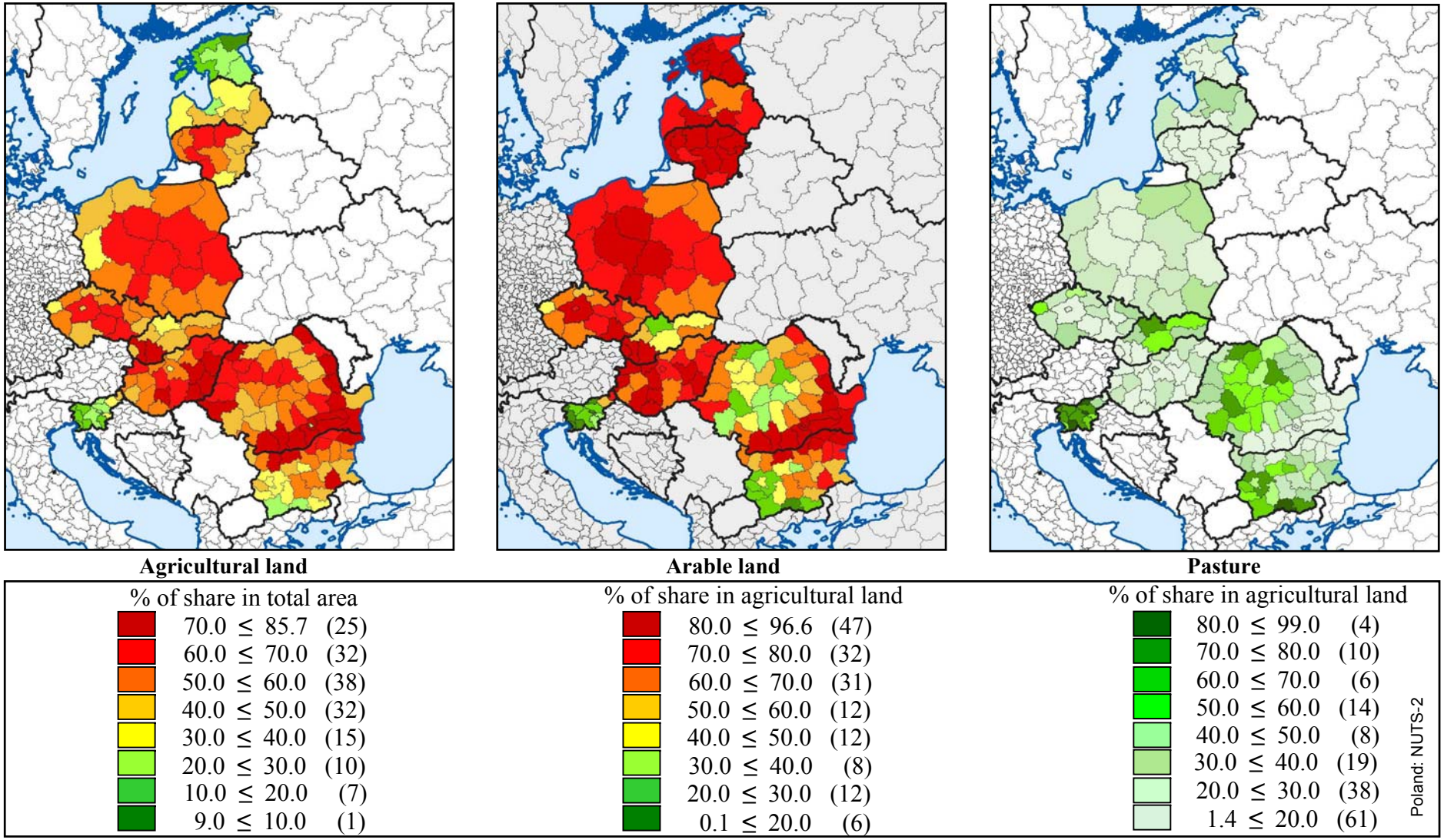
Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

3.2.3 Expected development of yields relative to those in the EU-15

In order to indicate agricultural production potential, some maps concerning land use and yields are presented (see Map 3.1). The share of agricultural land in total land differs among the CEE regions, depicted in Map 3.1, between 9% in and 86%. This reflects both the influence of natural conditions, (climate, soils, relief) which are decisive for agricultural vs. forestal land use, and the population density, which affects the area needed for roads, buildings, etc. A low share can be found in Estonia, Slovenia and Southwestern Bulgaria, whereas Central Poland, Central Czech Republic, and parts of Lithuania and Romania, Southern and Southeastern Hungary, Southwestern Slovakia and Northern Bulgaria have high shares of above 60%. A high share of arable land in total agricultural land of more than 70% is observable in the Baltic states, Poland, the Czech Republic, Southwestern Slovakia, Hungary and the plain areas of Romania and Bulgaria. Complementary, the share of pasture is low in these regions. In contrast, the mountainous regions of Slovenia, Central-Romania, Southwestern Bulgaria and Northern Slovakia have a high share of pasture and a low share of arable land.

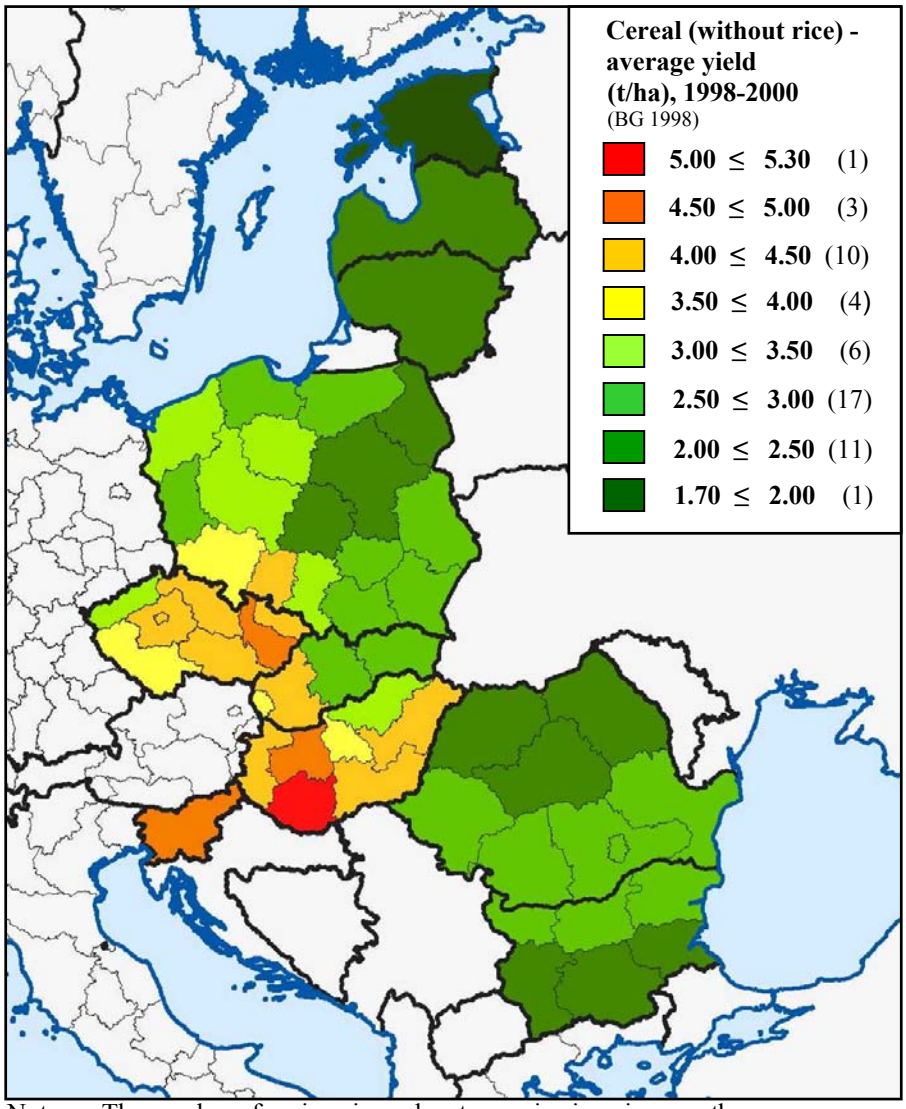
Natural conditions – besides economic and technological factors – also influence the yields realised. The average cereal yield in the period 1998-2000 varies between 1.7 and 5.3 t/ha at NUTS-2 level (see Map 3.2 and cf. Table A-1.1 in the annex for data of the CEE NUTS-2 regions). Low yields below 2.5 t/ha are observable in the Baltic states (relatively poor soils, cool temperatures), Bulgaria, Romania, Eastern Poland and Western Slovakia (partly mountains). In these countries, the use of yield-increasing inputs (fertilisers, pesticides) in agriculture is low. Data on the average input use for cereal production is lacking. However, the average Nitrogen fertiliser application per hectare of agricultural land can serve as an proxy: in Estonia and Latvia, only 11 kg N/ha were applied in 2000 (see chapter 7). The corresponding figures for Romania and Bulgaria are 20 and 22 kg N/ha, respectively. More than 4 t/ha were harvested in Slovenia, Hungary, the Czech Republic and Southern Poland.

Map 3.1: Land use, 2000



Note: The number of regions in each category is given in parentheses.
Source: Author´s computations based on EUROSTAT's Newcronos Regio data.

Map 3.2: Average cereal yield (without rice), 1998-2000 (t/ha)

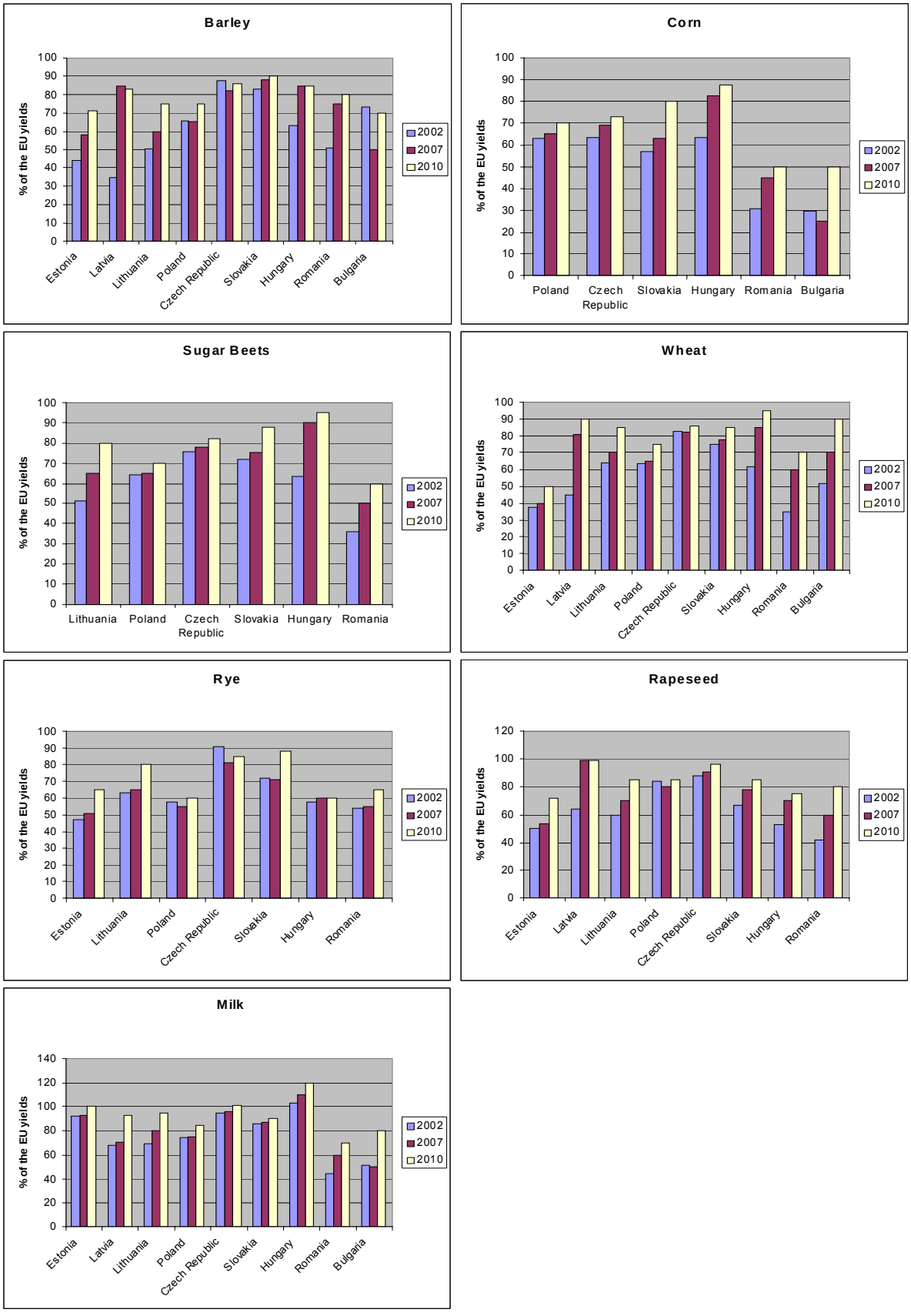


Note: The number of regions in each category is given in parentheses.
Source: Author´s computations based on EUROSTAT's Newcronos Regio data.

In all new Member States, crop yields are considerably lower than the EU-15 average (see Figure 3.2). The same holds for yields of dairy cows. In 2002, with a few exceptions, yields in the CEE NUTS-2 regions ranged from about 30% to 70-80% of those of the EU average. Less use of fertilizers and pesticides is seen by the experts as the main reason for these differences. Other, less frequently-mentioned opinions by experts are fragmented farm structure, insufficient technical equipment and unfavourable climate. In addition to those factors, managerial capability should not be overlooked. The low level of education and farmers' insufficient skills for handling modern technologies and participating in markets must to be considered as an equally important problem (see section 4.3 for educational level). Another possible reason for the deviation in some countries is the large share of self-subsistence and part-time farms, which apply an intentionally low level of chemical inputs.

There is a common expectation that in the near feature all yields will increase, not only absolutely, but also relative to the corresponding EU-15 average. By the year 2010, after accession to the EU, yields in the new Member States will still be lower than the EU average. The predicted yield increase depends strongly on the initial level, but most frequently it reduces the gap between the EU-15 average and the new Member States by 5 to 15 percentage points. This scale of increase might be considered realistic, assuming that the technologies of production will improve and the inputs increase.

Figure 3.2: Actual and predicted yield of crop and milk production in the CEE countries as percentage of the EU average



Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

It can be expected, that due to technological advancements, yields will also increase in the current Member States. This may cause a significant gap to remain in the short-term perspective. For most countries, this was also the case during the 1990's.

What was said about crop yields also holds for yields in dairy production. It should be noted that this applies to all countries except Hungary, where present milk yield exceeds the EU average, and a further increase is expected.

3.2.4 Expected development of prices and rental rates for farm land until 2007, and factors influencing technical change and farm structure

The land market is not fully developed in the new Member States, largely due to the government's past control of land in all former socialist countries, and to the not yet completed privatisation. There is no clear tendency of change in land purchasing prices and leasing rates, mainly because of lacking institutional arrangements and a large share of informal land renting agreements. Both of these hamper the transparency of the land market. It should also be emphasized that statistics on land lease is very poor in many countries (e.g., Poland, Estonia) and information on other leasing arrangements (including rates) is also quite incomplete. Currently, the purchasing prices for land vary enormously among different regions in CEE. For example, in rural Romanian, areas of 230-270 EUR/ha are common, whereas prices in Slovenia reach up to about EUR 25,000 per ha closer to Ljubljana in the border region to Austria. Land prices have impacts on the structural development in agriculture. High prices positively influence access to credits, since land-owners have more collateral. However, high prices also have the negative effect that the growth of farms in terms of land becomes more expensive. In the following, a brief countrywise overview on the expected development of prices and rental rates for farm land is provided.

Taking into account the most recent inflation rates, which were 3% in 1999 and 4% in 2000, land selling and leasing prices are expected to increase in **Estonia**. Another reason for the rise is the land tax increase in 2001. Land tax is based on market values of land, excluding values of buildings, improvements and forest stands. Tax rates are set annually by local governments and vary between 0% and 2% in general, but 0% and 1% for agricultural land; both have upward tendencies. Thirdly, a general price harmonization process after accession is expected, which will reduce the abnormal gap in land prices between EU-15 Member States and Estonia presently observed. In 2000, the average land price was as low as 240 EUR/ha for arable land, and the average land lease rate approximately doubled the land tax.

In **Poland**, prices of land differ significantly between regions. There are areas where supply exceeds demand (e.g., in the Northwest), but the opposite holds as well in some regions. The latter can be found mainly where the share of small individual farms is high, thereby demanding land, especially of better quality, for expansion. In spring 2003, the prices tended to increase because a more restrictive law on land sales was introduced.

It is expected that after accession to the EU, land prices will moderately increase, assuming that predictions concerning the improved profitability of agricultural production will prove to be correct. Certainly, regional disparities depending on demand and supply conditions will remain.

Prices in the **Czech Republic** will grow, however, they will remain below the level in neighbouring East Germany; although there, prices are still significantly lower than in the western part of Germany.

The main characteristics of the **Slovakia**n land market are as follows: Sales and purchases of land are limited mainly to very small areas, (below 1,000 m^2) with the aim of enlarging own plots or establishing buildings, but not for agricultural production. The real market prices are

much higher than administrative land prices (established mainly for taxation purposes). The highest intensity of land transactions took place in the most agriculturally-productive regions and in areas with natural conditions favourable for tourism. According to a recent survey, approximately 0.6% of the total agricultural land was sold in 2002.

Regarding the future development of land prices and leasing rates, a significant increase is expected, compared to the year 2002 (in some regions up to +60-70%). In the most productive regions, depending on expected profits and the scale of direct payments, market prices may increase even two or three times compared to the current situation. In a number of cases, the future price of land will be affected by higher demand for land from EU companies/producers. Limited liability companies (LLCs) will probably purchase significant amounts of land mainly from small owners who are currently renting their land to LLCs. On the other hand, some LLCs may rent or sell land (purchased from small owners) to larger capital groups.

Due to the specific situation of the land rental market in Slovakia (i.e., a large number of land owners usually lease their land to large-scale agricultural enterprises) and the relatively strong position of the farm management of those farms, it may happen that the development of land rental prices will initially lag behind those for land purchase. Nevertheless, it can be expected that renting farmland will also increase in the future and may exert additional pressure on the decrease of farm employment.

For **Hungary**, a moderate increase in land prices can be expected. Multiplication of existing prices, as some journalists and politicians predict, is not likely, at least not before the year 2007. Afterwards, especially if more financial investors enter the Hungarian land market, further increases are possible. However, there are no reasons why Hungarian land prices should exceed those prevailing e.g., in France and which are not significantly higher.

As to the land lease markets, rents usually do not correspond with land prices in Hungary. In underdeveloped areas, where agriculture plays a more important role for regional economies than in other parts of the country, land prices are higher but rents are lower, as is the case in Eastern Hungary. There are land owners who use their land as a kind of unemployment insurance. They lease their land even at low rental rates and do not sell it. In areas where per-capita income is higher (e.g., Western Hungary) more opportunities for better paid jobs in other sectors exist. The owners sell their lands easier, but if they keep the ownership, they charge higher rents.

In **Slovenia**, the land prices and rents vary across the country. For example, in the remote, rural Northeastern part of Slovenia, the price of agricultural land is about EUR 5,000 per ha. Land prices (and rents) are higher closer to larger towns, (e.g., Maribor and Celje) where agricultural land is about EUR 15,000 per ha, than in the areas closer to the capital Ljubljana and northward in direction of Austria, where agricultural land is about EUR 25,000 per ha. Land is particularly expensive in the western part of Slovenia, closer to the sea and Italy, where agricultural land is about EUR 50,000 per ha. This suggests that the location of the land plays a more crucial role for the land price than land quality. During recent years, agricultural land prices have declined in the Northeastern part of Slovenia. This was largely related to the low profitability of small-scale farming.

In the near future, agricultural land prices are likely to align with neighbouring EU countries, as they vary quiet differently between Austria, Italy and Hungary. A main factor for land price changes is the expected decline in demand for agricultural land due to structural changes and a reduction in the number of farms. There will be more pressure on transferring agricultural land to non-agricultural uses near larger towns and in areas attractive for tourism.

According to the country experts for **Romania**, Law 54/1998 regarding the legal movement of land does not favour the development of the land market. Small agricultural households

have not sold their land. The right of acquiring the arable equivalent of up to 200 ha and the decrease in land prices are not conducive to creating an active land market. The rather low prices (230-270 EUR/ha in the countryside and 2,100-2,300 EUR/ha within communities) and lack of taxation are among the factors limiting the extension of the land market. Land owners from urban areas do not sell their land because of low prices, and the elderly from rural areas, who have no other sources of income, use their land in a non-economic way. Land transactions are also limited by the high cost of notary costs and fiscal taxes, which are levied in addition to Cadastral and Agricultural Register taxes.

Land leasing would be a way of increasing the size of farm holdings, but renting agricultural land in Romania is not yet popular. Farmers leasing land would need to resist the difficulties of financing production and investments, as well as high taxes.

In **Bulgaria**, land prices are also rather low, ranging from 600 EUR/ha to 1,500 EUR/ha among different regions. Prices have increased during recent years and now the government has announced the establishment of a special agency for stimulating the land market. The country experts estimate that, at present, the supply of land exceeds demand by a factor of 3 to 4. However, if the state starts to buy land the price is expected to rise.

In general, it is expected that accession into the EU will contribute to increasing purchase prices and rental rates due to the improved profitability of agriculture (see below). To which degree and how fast higher profitability will lead to increasing rental rates is dependent on the prevailing rental arrangements. In areas with informal, short term leasing, rental prices could catch up faster than in those predominantly under long-term contracts. However, detailed information about the leasing arrangements is not available. Furthermore, the market power of land owners and leasers is important. In regions characterised by large-scale farms, e.g., in the Czech Republic, these could have monopsonistic power, leading to low rental rates.

3.2.5 Expected development of farm income

On average, farm income in the 8 CEECs joining the EU in 2004 will probably increase in the next few years. Development is more difficult to predict for Bulgaria and Romania, who will probably join the EU in 2007. The main factors contributing to the positive development are:

- higher subsidies after implementing the direct payments and other CAP and structural policy measures. The existing level of income support is, in all CEE countries except for Slovenia, lower than what the CAP provides (see chapter 8);
- an increase in prices of some agricultural commodities;
- productivity increases resulting from technological progress and other improvements.

An improvement in the average income situation is likely; however, this does not hold for each single farm. Calculations for Poland indicate that in the first year after accession, the gross farm income of the entire sector will reach 128% of that in the base year 2001/2002 if a rate of direct payments of 35% of the EU level is applied. It will reach 147% if the rate of payments is raised to 55% (see Table 3.11). These calculations assume that farmers apply for all available (100% utilization) direct and less-favoured area (LFA) payments. The relative change in net farm income is even more pronounced for some farms, with negative values in the base year. According to these estimates, farms with arable crops and those below 7 ha are still expected to show negative net farm income even after the CAP is introduced in the first year after accession. Given these figures, it becomes obvious that for some farm types, major adjustments are unavoidable. It is somewhat surprising that farms with arable crops belong to this type.

Table 3.11: Farm income in Poland in the base year 2001/02 (without CAP) and in 2004 (with CAP) (EUR/ha) – model results (mixed scheme of direct payments calculation, rate of payments: 55% of the EU-15 rate) [1)]

Farms	Policy scenarios			
	base 2001/2002	with CAP 2004 Mixed (55%)	without CAP 2001/2002	With CAP 2004 Mixed (55%)
	Net Farm Income in EUR/ha		Gross Farm Income in EUR/ha	
Sector, total	**-17**	56	158	232
Farms grouped according to type of production:				
Cattle	**-58**	9	126	193
Pig	14	93	161	240
Arable	**-121**	**-31**	70	160
Mixed	53	120	224	291
Farms grouped according to soil quality:				
Good	47	110	298	361
Medium	**-30**	45	143	219
Poor	**-46**	32	75	153
Farms grouped according to size				
Below 7 ha	**-122**	**-53**	92	161
7-15 ha	**-5**	60	185	252
15-25 ha	34	107	199	272
25-50 ha	72	151	203	282
Above 50 ha	100	204	186	291

Note: [1)] LFA payments included.
Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Similarly, estimates for the Czech Republic, based on calculations carried out in the IDARA project, indicate an increase in net value added at factor costs of 150%. This is partly due to increased farm gate prices, as well as tripled subsidies, and partly due to higher production levels. The Slovak experts expect that during the next couple of years, farm income (per person employed) will grow slightly faster than income from non-farming activities. However, the country experts for Slovenia assume that the role of agricultural income in rural income will be stable or even decline.

In all countries joining the EU in 2004, positive impacts due to the implementation of the CAP are expected, although not all groups of farmers will equally benefit from the accession. In the Czech Republic, farmers producing beef (and hence also mountain and sub-mountain farmers) will benefit most; however, Czech experts do not expect essential changes in income distribution. For Hungary, an overall increase of the gross margin is estimated, but dairy and poultry producers will benefit less than those specialized in crop production.

The income impact of introducing direct payments in the new Member States will also strongly depend on the additional support paid out of national budgets. There is no clear answer to the question of which payments scheme (standard or simplified) will be applied, just as there is no answer regarding the level of payment from national funds. In Poland, Slovenia, Slovakia and Latvia, the simplified scheme is to be introduced while other countries have not yet decided in this respect. Similarly, the level of the national top-up has not been determined. In Poland and Estonia, it will most likely reach 30% each year between 2004 and 2006 (especially in Poland, farmers are loudly lobbying for the maximum rates), whilst in other countries expected figures range between 15 – 25%.

Less predictable are changes in farm income levels in Bulgaria and Romania, which will not join the EU in the first round. For Bulgaria, it is not quite clear what is presently the real income situation of farmers. The full census of Bulgarian farms, which is to be conducted this year, will shed more light on both farm structure and income from farming, as well as from other sources.

In Romania, the majority of agricultural holdings belong to part-time farmers, and a very high percentage of the labour force is employed in agriculture. Structural changes and a reduction of the agricultural labour force by establishing off-farm jobs and developing multiple farm activities, should inevitably lead to an increase in farm income per person.

Non-farm incomes have an essential role in shaping personal incomes for a large part of the rural and agricultural population in the CEE countries. This is discussed in more detail in chapter 4. Rural population incomes are dependent on receipts from farming, from non-agricultural gainful activities, as well as from pensions and other social transfers. The importance of non-farm incomes is evident from Table 3.12. For example, the net farm income of farmers in Estonia, Lithuania and Poland averages 49%, 57% and 70% of their personal income, respectively, with great variations in the different farm size groups. Similar information for the other countries is not available.

Rural development policies and funding available after accession to the EU will most probably accelerate the possibilities of generating non-farm incomes (see section 4.7 for the potential of alternative income sources and section 8.5 for policies aimed at improvement of rural areas). However, these policies will not immediately reduce unemployment and/or provide opportunities for generating additional farm income, since the effects of structural measures, unlike those of direct payments, will come about gradually and more in the medium-term horizon. It should also be emphasized that the scope and speed of structural changes in agriculture and rural areas are strongly dependent on the development of the national economy. Nevertheless, a rather commonly shared opinion among experts is that non-farm income will increase, although there are no quantifiable projections.

Table 3.12: Income measures for different strata of the farm population, including separate figures for farm and non-farm income, income parity index, where available

	Farm size group, in ha (if not stated otherwise)						
Indicator and unit of measurement	**< 5 ha**	**5 to<20**	**20 to<50**	**50 to <100**	**100 to < 1000**	**1000-**	**Average**
Estonia, 2001							
NFI [1] (in EUR/farm)	1,751	1,882	2,145	5,020	5,901		4,320
PI [2] (in EUR/farm)	2,372	2,780	3,543	9,840	37,329		8,773
PI [2] (in EUR/ha)	1,359	280	119	144	90		690
NFI [1] as % of PI [2]	73.8	67.7	60.5	51.0	15.9		49.2
Latvia, 2001							
Indicator and unit of measurement		< 25 ha	25-50	50-100	>100		
NFI [1] (in EUR/farm)		1,957	2,712	5,660	7,249		2,148
Lithuania, 2001							
Indicator and unit of measurement	< 10 ha	10-20 ha	20 to<50	50 to <100	100 to < 1000	1000-	
NFI [1] (in EUR/ha)	353	157	151	125		-164	465
PI [2] (in EUR/ha)	781	286	203	181			812
NFI [1] as % of PI [2]	45	55	74	69			57
Poland, 2001							
NFI [1] (in EUR/farm)	295	3,124	7,994	63,962			2,197
NFI [1] (in EUR/ha)	119	326	288	257	194		260
PI [2] (in EUR/farm)	3,963	5,816	10,242	75,411	0		3,152
PI [2] (in EUR/ha)	1,599	607	369	303	211		373
NFI [1] as % of PI [2]	7	63	78	85	92		70
Income Parity Index (in %)							Ca 40
Czech Republic, 1999							
NFI [1] (in EUR/farm)	11,999	645	1,514	5,954			11,302
NFI [1] (in EUR/ha)	6,092	92.3	69.6	85.5	85.9	125.9	112.3
Slovakia, 2001							
Indicator and unit of measurement		< 8 ESU	8-16 ESU	16-40 ESU	40-100 ESU	>100 ESU	
NFI [1] (in EUR/farm)		-3,545	3,346	2,131	13,326	204,241	105,960
Hungary, 2000							
PI [2] (in EUR/per AWU)	1,613	1,310	1,373	1,720	2,718	3,018	2,673
Slovenia, 2000							
Indicator and unit of measurement	< 4,800 EUR	4,800 - < 9,200 EUR	19,200 - < 48,000 EUR	48,000 - < 20,000 EUR	120,000 - < 300,000 EUR	>300,000 EUR	
NFI [1] (in EUR/farm)	1,998	8,606	27,897	67,795	181,569	1,103,448	5,589
NFI [1] (in EUR/ha)	574	932	1,681	3,132	2,360	2,906	995

Notes: [1] Net farm income. [2] Personal income (NFI + non-farm income).
Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

3.3 SWOT analysis

In an open question, the country experts were asked to list the five most important strengths (S), weaknesses (W), opportunities (O) and threads (T) of agriculture in their country. The SWOT analysis reflects both the overall farming situation and some specific conditions of this sector as viewed and evaluated by the country experts. The rather large differences in these conditions are summarised as strengths, weaknesses, opportunities and threats. The complete set of all individual country analyses is presented in the annex in Tables A-3.2 to A-3.11. Table 3.13 synthesises the country specific results of the SWOT analysis. This summary assessment is likely to have some shortfalls, not only because of the vast differences found in

the agriculture sectors of the new Member States, but also due to varying judgment of the country experts on the importance of various issues.

Table 3.13: Synthesis of the SWOT analyses for 10 CEE countries

Strengths (+)	Weaknesses (-)
– fertile soils/favourable natural conditions (EST, SK, ROM, BG) – traditions in farming, mixed or diversified farming (LT, BG, PL, LV) – relatively low employment in the agricultural sector (EST, CZ, SK) – low cost of major inputs, low labour costs (H, LT, PL) – low-input/environmentally-friendly farming systems (LV, PL, H) – relatively good professional skills and potential for development (EST, CZ, SK) – economies of scale due to large farms (H, CZ, SK)	– very fragmented land ownership/underdeveloped land markets (LT, LV, PL, SK, H, SLO, BG, ROM) – low level of farm mechanization (EST, LV, LT, SK, BG) – low productivity of land or labour (LV, PL, SK, ROM) – lack of investment in agriculture (EST, LT, H) – low education level of farmers (EST, SK, SLO) – poor natural conditions for farming (PL, CZ, SLO)
Opportunities ☺	**Threats ☻**
– enlarged market/better access to EU market (LV, LT, SK, H, BG) – expansion of environmentally-friendly/organic farming (EST, LV, PL, CZ, H, SLO, ROM) – diversification (tourism, niche products, aquaculture, etc.) (EST, LV, LT, CZ, SLO) – development of common supply and marketing organisations (EST, SLO) – more stability in agricultural policy/markets (PL, H) – improvements in agricultural technologies (EST, PL)	– increased competition on domestic markets (LV, LT, H. SLO, BG) – loss of skilled labour / out-migration from rural areas (EST, LV, SK) – lack of investment in agriculture (EST, LT) – EU quality standards (*acquis communautaire*) (PL, H)

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

This analysis is to be read with care, because in some cases the experts looked at the same issue from different angles and described them in quite an alternative way. Two examples shall suffice to make this point. "Natural conditions" for farming is judged as soil quality in some countries and evaluated as a strength, (Estonia, Slovakia, Romania, Bulgaria) while in other countries overall natural conditions were considered and assessed to be a weakness (Poland, Slovenia, Czech Republic in large parts of the country). The labour force situation in agriculture is assessed as number of workers employed in this sector for the Czech Republic, Slovakia and Estonia, and evaluated positively, while in other countries the high number of small farm holdings is considered and judged to lead to the problem of hidden unemployment with low labour productivity (Poland, Latvia and Romania).

Low costs of main inputs, including those of labour, are listed as a strength in only three countries (Hungary, Lithuania and Poland).

The fragmentation of farm structure is the most commonly-mentioned weakness. On the other hand, a high share of large farms, allowing the exploitation of economies of scale, is listed as a strength of the Czech Republic, Slovakia and Hungary. In the latter two countries, however, a dual farm structure exists with a high share of small holdings. This is considered as a weakness.

Not surprisingly, for a number of countries, easier access to the EU markets after enlargement is seen as an opportunity, and at the same time, the possibility of increased competition on domestic markets is a threat.

Other opportunities most frequently-mentioned in the analyses were related mainly to improvements in technologies of agricultural production, and more widely to the dissemination of more environmentally-friendly practices and the development of organic production. This could result in increased productivity, but also improved quality of agricultural produce.

The most varying views in this analysis are found with regard to potential threats, except for the expectation commonly shared among all experts, that competition on domestic markets will increase in the future.

The analysis presented in this chapter is indicative of the diverse picture describing the current situation of agriculture in the new Member States, which for most of them is also the year immediately preceding EU accession. This heterogeneity is also strongly reflected by differences in the assessment of specific elements in the SWOT analysis. The general conclusion to be drawn from this picture is that not all agricultural policies can be the same for each of the CEE countries. Rather, specific measures are also necessary, which take into account the variety of structures found in the agricultural sectors, and also the diverse objectives each country may pursue with these policies. However, the task of avoiding the marginalisation of agriculture and taking advantage of existing opportunities seems to be the same in all CEECs.

4 RURAL ECONOMIES AND THEIR DEVELOPMENTS; IN PARTICULAR, LABOUR MARKET TRENDS AND OFF-FARM ECONOMIC DEVELOPMENT

The economies of the CEE transition countries have undergone a great deal of restructuring since 1989. Output fell in the early years of transition and only began to recover after 1995. Agricultural production was strongly affected by this process, not least because of the far-reaching institutional reforms in this sector that were taking place in an environment of adverse price cost movements. Agricultural employment reacted quite differently, with a strong decline in agricultural employment in some countries and increases in others. The collapse of large multi-functional agricultural cooperatives in some countries also meant the disruption of a range of local industries and services previously supplied by those bodies.

These changes have left their mark on rural areas. Rural areas lag behind urban areas in many respects. Poverty and unemployment are at significantly higher levels in rural than in urban areas. Fewer people have jobs, and some are likely to commute long distances to towns and cities outside their localities to find work. Given their low educational status, they are more likely to have low paid jobs or be unemployed. Structural changes are taking place, sometimes quite rapidly, as for instance in the reduction of the number of people who work in agriculture and in the (re)emergence of commuting to work in urban areas.

The labour markets of urban and rural regions are an important real determinant of prosperity. In this chapter, the types of job and employment people have, the level of wage rates and earnings, activity rates and the degree of unemployment are analysed in order to assess the situations and prospects of rural people. Employment in towns, together with social security payments, are usually the two most important sources of income in most rural regions. The nature of the labour market is also changing, with growth in service-related jobs at the expense of agriculture and manufacturing.

Differences in demographic structures, the natural population movement and patterns of internal migration between rural and urban regions are examined, having an important influence on the regional economic dynamism and growth, as well as on living standards and the provision of social services.

Rural citizens are generally much less educated than their urban counterparts. In several countries, this situation is not improving, with the result being that rural employment tends to be in lower paid jobs. While rural schools are part of unified national systems, there are differences in the quality of provision, as manifested by the willingness of teachers to work in rural locations, and access to modern developments such as IT. Low incomes and poor and expensive transport also restrict access to educational opportunities for rural children. Training provisions for established workers seem to be at initial stages of development, with more institutional and funding concerns being readily reported than success stories from the point of view of the workforce.

Some indications of the patterns of commuting to work are available. Commuting seems to be a growing practice, is associated with construction and transport, and reflects the fact that the economic growth of the new Member States tends to be urban-based and especially focused on capital cities.

The remainder of this chapter is organised as follows: Section 4.1 discusses the living standard in rural areas. Since demographic structures have important implications for economic dynamism and growth, section 4.2 focuses on this issue. The endowment with human capital, an important determinant of development potential, is examined in section 4.3. The analysis of employment structure (section 4.4) and economic activities and incomes (section 4.5) in CEE reveals that in many rural areas, the services and industrial sectors are more important than agriculture, at least on the NUTS-3 level. Commuting from rural to urban areas can contribute to increasing living standards in rural areas. Section 4.6 provides information on com-

muting practices in the new Member States. Section 4.7 presents subjective assessments of the potential for alternative income generation activities as given by the country experts. The chapter is finished by a brief discussion of the strengths, weaknesses, opportunities and threats of rural economies (section 4.8).

4.1 Rural living standards

4.1.1 Overview

The observation that most rural areas are economically less-developed than urban areas also holds for the new Member States. In the following, the gross domestic product (GDP) per capita, the share of population living in poverty and the unemployment rate are taken as indicators for the rural living standard. In all countries for which data are available, the GDP per capita in rural areas is below the national average (see Table 4.1). Differences are most pronounced in Estonia, where the per capita income of rural areas reaches only 44% of the national average. Income is more equally-distributed in Slovakia (88%) and the Czech Republic (85%). These differences within a country may be overestimated if differences in purchasing power are standardised across countries but not within countries.

Table 4.1: National and rural average GDP per capita in Purchasing Power Parities

	EST	LV	LT	PL	CZ	SK	H	SLO	ROM	BG	CEECs	EU
Year	2000	2000	2001	2001	2000	2000	2000	2000	2001	2001	2000	2000
National average PPP	8,400	6,600	9,017	8,951	12,621	10,478	11,894	16,000	5,463	7,100	8,694	22,603
Rural areas PPP	3,670	n.a.	n.a.	n.a.	10,753	9,172	8,000	12,000	n.a.	n.a.	-	-
as per cent of national average	44%	n.a.	n.a.	n.a.	85%	88%	67%	75%	n.a.	n.a.	-	80% [1)]

Note: [1)] EU-15: GDP in *predominantly rural regions* (over 50% of the population living in rural communities with a population density below 100 inhabitants / km^2) as share of national average, 1994.

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries. Czech Republic (national), Poland and Romania: EUROSTAT´s Newcronos Regio data. EU-15: EUROPEAN COMMISSION, DIRECTORATE GENERAL FOR AGRICULTURE (1997).

EUROSTAT's Newcronos Regio data for 1995 and 2000 reveal that the GDP per capita in Purchasing Power Parities (PPP) increased in all new Member States, although in Bulgaria by only +3%. Romania, the Czech Republic and Slovakia also experienced growth below the CEEC-10 average of 31%. The highest relative increase was reported for Latvia (+63%) and Estonia (+53%). In absolute numbers, the per capita income growth was strongest in Slovenia (PPP +4,169) and Hungary (PPP +3,311). However, the regions in the respective new Member States did not equally participate in this positive development. In most countries, this has led to growing disparities between NUTS-3 regions in terms of GDP per capita in the analysed period 1995 to 2000. This is particularly pronounced in Latvia and Poland.

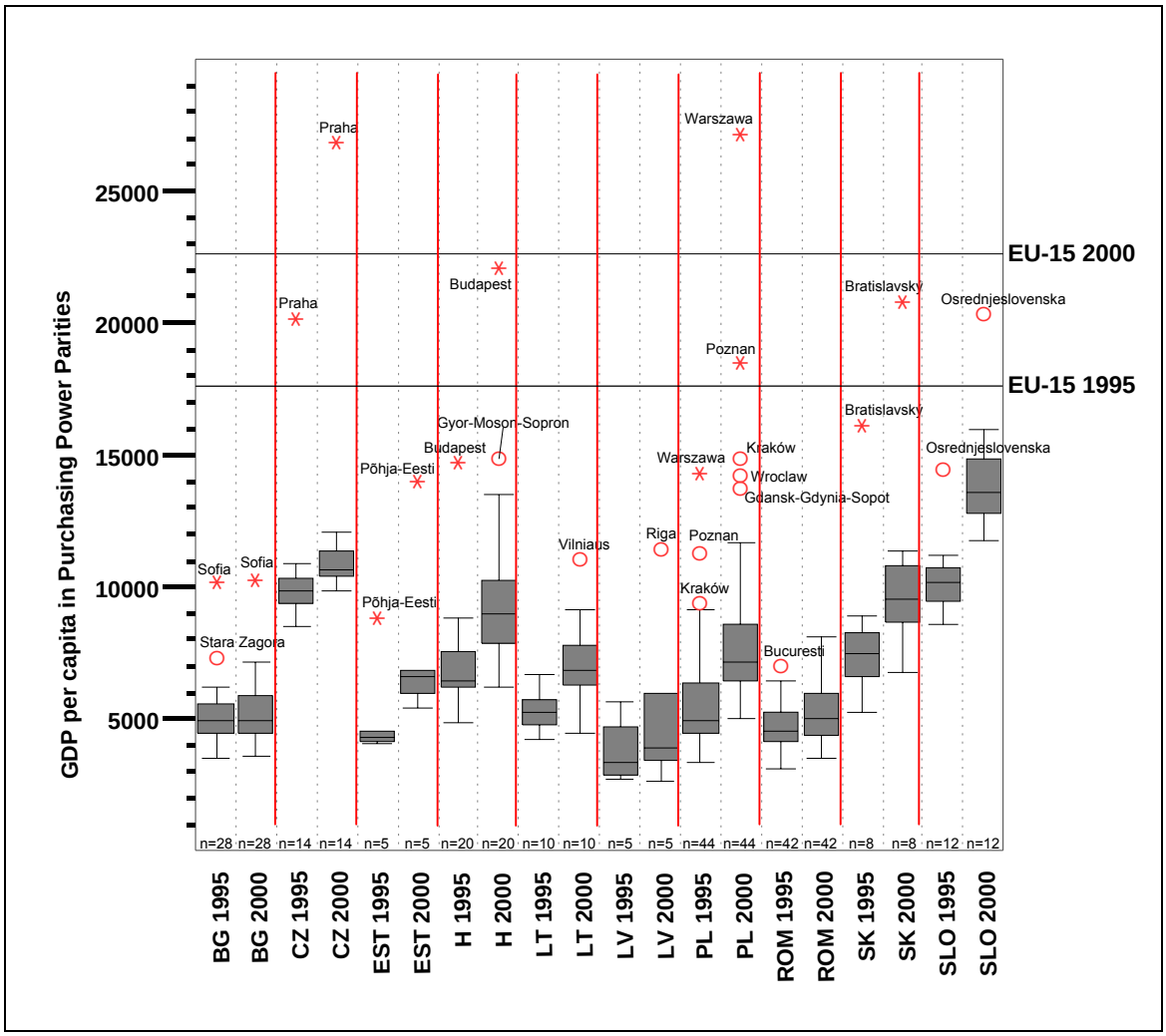
The ratio of the poorest region (in all cases rural areas) of the respective country to the richest region (in all cases the capital) increased from 1 : 2.6 in 1995 to 1 : 3.1 in 2000, which was similar to the EU average from 2000 (1 : 3.3) (see Table 4.2).[5] This measure revealed the highest disparities in Poland (1 : 5.4 in 2000), Latvia (1 : 4.3), Hungary (1 : 3.5) and Slovakia (1 : 3.1), whereas Slovenia had a rather homogeneous structure (1 : 1.7). The above values are reduced if one considers the ratio between the poorest and richest regions which each represent 25% of the population. There, the average value declines to 1 : 2.4, but the principle pattern is the same. Measuring the disparities by the variation coefficient changes the order a bit. Regional disparities are most pronounced in Latvia (0.51 in 2000), followed by Poland (0.45)

[5] These figures tend to overestimate the regional disparities, although GDP per capita is expressed in purchasing power parities. Whereas they adjust for differences in the purchasing power between countries, they do not take into account regional differences within a country.

and Slovakia (0.41). According to this measure, regional disparities in the CEEC-10 (0.46 in 2000) appear stronger than in the EU (0.36). In six new Member States, (eight when measured by the variation coefficient) the disparities increased between 1995 and 2000, while they stayed more or less constant in the remaining four (Hungary, Slovenia, Romania, Bulgaria). Figure 4.1 shows that the rising disparities are not caused by an absolute decline in GDP per capita of the poorer regions (except for Latvia). Rather, they could not keep pace with the quick growth in the capital regions.

Within the EU-15 there are more homogenous countries like Sweden (1 : 1.8) and Ireland, (1 : 1.9) as well as countries with very high disparities like the United Kingdom (1 : 7.6), Germany (1 : 6.8), Belgium (1 : 4.8) and France (1 : 4.5). In around half of the Member States, the disparities have slightly increased, but on average the situation remained stable in the EU-15 between 1995 and 2000, which is in contrast to the CEEC-10 (see Table 4.2).

Figure 4.1: Disparities in GDP per capita (PPP) between NUTS-3 regions in CEEC-10



Notes: Box: 50% of the regions are within the upper and lower value indicated by the box. Line = median. O = outlier exceeding the upper quartile value of the box by more than the 1.5-fold of the length of the box. * = extreme value exceeding the upper quartile value of the box by more than the 3-fold of the length of the box.

Source: WEINGARTEN and BAUM (2003).

Table 4.2: Disparities in GDP per capita (PPP) between NUTS-3 regions in the CEECs and the EU Member States, 1995 and 2000

	Minimum and percentage change, 1995 to 2000			Maximum and percentage change, 1995 to 2000			Average and percentage change, 1995 to 2000			Ratio poorest to richest region		Variation coefficient [1]		Development of disparity	Ratio of poorest to richest regions (ca. 25% of population) [2]
	1995	2000	%	1995	2000	%	1995	2000	%	1995	2000	95	00	95-00	2000
Estonia	4,073	5,417	33	8,836	14,004	58	5,985	9,147	53	**1:2.2**	**1:2.6**	**0.34**	**0.39**	↑	1:2.4
Latvia	2,746	2,674	-3	5,613	11,479	105	4,302	6,992	63	**1:2.0**	**1:4.3**	**0.29**	**0.51**	↑	1:3.5
Lithuania	4,215	4,467	6	6,660	11,018	65	5,657	8,078	43	**1:1.6**	**1:2.5**	**0.13**	**0.23**	↑	1:1.9
Poland	3,382	4,988	47	14,305	27,141	90	6,059	8,951	48	**1:4.2**	**1:5.4**	**0.36**	**0.45**	↑	-
Czech Rep.	8,528	9,863	16	20,128	26,855	33	10,968	12,621	15	**1:2.4**	**1:2.7**	**0.23**	**0.34**	↑	1:1.7
Slovakia	5,219	6,737	29	16,152	20,785	29	8,098	10,478	29	**1:3.1**	**1:3.1**	**0.41**	**0.41**	→	1:2.1
Hungary	4,818	6,237	29	14,687	22,046	50	8,115	11,426	41	**1:3.1**	**1:3.5**	**0.25**	**0.32**	↑	1:2.7
Slovenia	8,608	11,735	36	14,447	20,319	41	11,086	15,255	38	**1:1.7**	**1:1.7**	**0.13**	**0.15**	→↑	1:1.6
Romania	3,124	3,489	12	7,014	8,081	15	4,923	5,463	11	**1:2.3**	**1:2.3**	**0.18**	**0.21**	→↑	1:1.9
Bulgaria	3,542	3,603	2	10,206	10,224	0	5,827	5,991	3	**1:2.9**	**1:2.8**	**0.22**	**0.22**	↓→	1:2.1
CEEC-10	2,746	2,674	-3	20,128	27,141	35	6,618	8,694	31	1:2.6[3]	1:3.1[3]	0.40	0.46	↑	1:2.4
Austria	10,545	13,992	33	27,492	35,483	29	19,465	25,831	33	**1:2.6**	**1:2.5**	**0.23**	**0.22**	↓	
Belgium	8,664	10,175	17	40,234	49,191	22	19,867	24,286	22	**1:4.6**	**1:4.8**	**0.26**	**0.27**	↑	
Denmark	14,760	18,892	28	35,166	43,850	25	20,845	26,803	29	**1:2.4**	**1:2.3**	**0.25**	**0.24**	↓	
Finland	11,729	15,370	31	23,150	33,235	44	17,109	23,498	37	**1:2.0**	**1:2.2**	**0.16**	**0.20**	↑	
France [4]	11,830	15,012	27	52,479	66,803	27	18,321	22,853	25	**1:4.4**	**1:4.5**	**0.29**	**0.29**	↑→	
Germany	8,451	10,423	23	53,522	70,821	32	19,420	24,053	24	**1:6.3**	**1:6.8**	**0.38**	**0.40**	↑	
Greece	6,136	8,701	42	26,175	28,181	8	11,639	15,300	31	**1:4.3**	**1:3.2**	**0.25**	**0.22**	↓	
Ireland	11,959	18,084	51	21,391	34,604	62	16,458	26,030	58	**1:1.8**	**1:1.9**	**0.19**	**0.22**	↑	
Italy	8,641	12,482	44	28,428	36,715	29	18,255	23,057	26	**1:3.3**	**1:2.9**	**0.25**	**0.24**	↓	
Luxemburg	30,128	44,139	47	30,128	44,139	47	30,128	44,139	47	**1:1**	**1:1**	**-**	**-**	-	
Netherlands	11,957	15,083	26	28,614	38,768	35	19,280	25,136	30	**1:2.4**	**1:2.6**	**0.18**	**0.19**	↑	
Portugal	5,795	7,374	27	20,351	26,496	30	12,314	15,372	25	**1:3.5**	**1:3.6**	**0.24**	**0.24**	↑→	
Spain	8,056	11,149	38	18,442	25,342	37	13,803	18,583	35	**1:2.3**	**1:2.3**	**0.20**	**0.20**	→	
Sweden	15,804	18,940	20	22,874	33,235	45	18,724	24,090	29	**1:1.5**	**1:1.8**	**0.08**	**0.12**	↑	
UK	10,185	13,235	30	76,911	100,079	30	17,025	22,678	33	**1:7.6**	**1:7.6**	**0.37**	**0.37**	→	
EU-15	5,795	7,374	27	76,911	100,079	30	17,655	22,603	28	**1:3.3**[3]	**1:3.3**[3]	**0.35**	**0.36**	→↑	

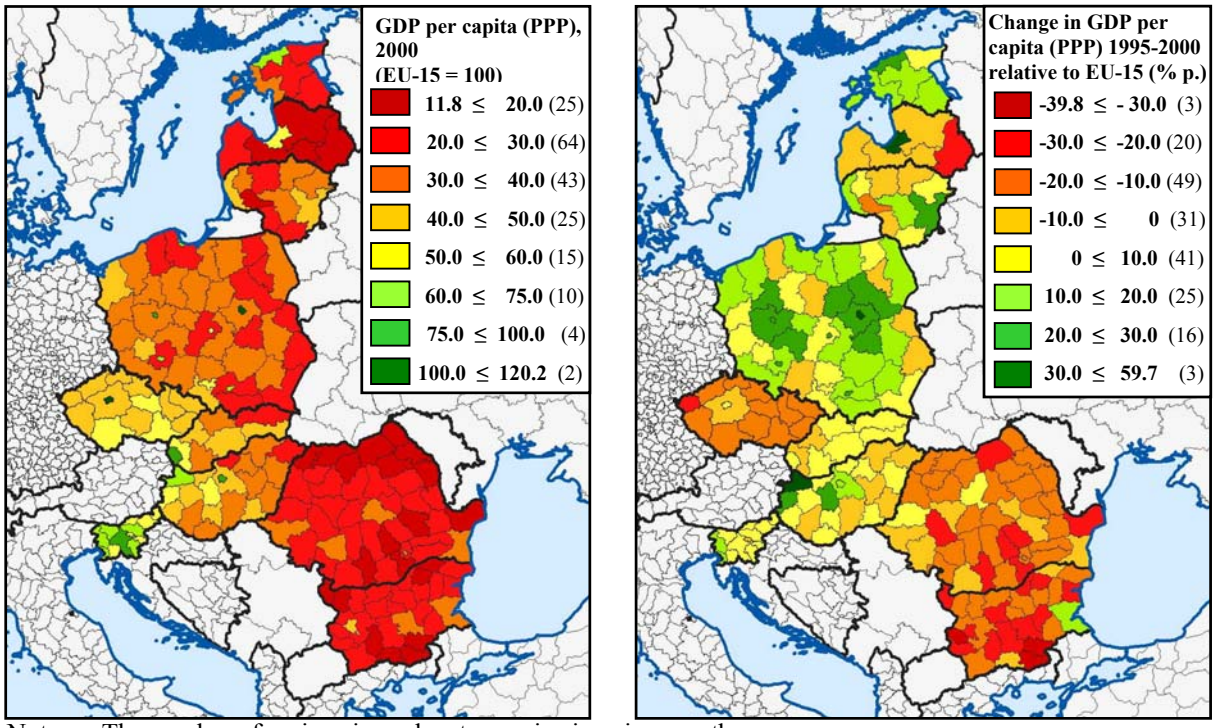
Notes: [1] Variation coefficient was calculated using the weighted average. [2] Latvia and Estonia are 40%, due to the high share of population in the capitals. For Poland no population data on NUTS-3 level available. [3] Unweighted arithmetic mean value. [4] France without overseas departments.

Source: WEINGARTEN and BAUM (2003).

The GDP per capita in purchasing power parities varies significantly between several countries and regions (see the left part of Map 4.1). It is highest in the capitals, large Polish cities, and most Slovenian regions (>60% of the EU-15-average in 2000). Only two regions (Warsaw and Prague) exceeded the EU-15 average. Northwestern Hungary, the Czech Republic and parts of Slovakia have a GDP per capita of 40-60% of the EU-15 average. However, this same figure reaches less than 30% in Romania, Bulgaria, Lithuania, Estonia, Northeastern Slovakia and parts of Poland. Comparing the income gap between the CEE regions and the EU-15 average from 1995 and 2000 reveals that in 103 NUTS-3 regions, this gap widened, whereas in the remaining 85 regions it narrowed. The most positive development of per capita income between 1995 and 2000 was observed in Poland, Northwestern Hungary, Estonia, parts of Lithuania and the region Burgas in Bulgaria (see the right part of Map 4.1). Most of the cities also showed moderate growth in comparison to the EU average (except Sofia and Bucharest). The strongest decrease in GDP per head in comparison with the EU average took

place in Bulgaria, Romania, E-Latvia and the Czech Republic. In conclusion, not all of the most wealthy regions experienced positive development of their GDP per capita relative to the European Union (see Map 4.1). The advanced Czech Republic, for example, had an unfavourable development in the observed period of 1995 to 2000. The Baltic states and parts of Poland could catch up, while in Romania and Bulgaria, the gap between the EU average widened in most regions.

Map 4.1: GDP per capita (PPP) as percentage of the EU-15 average in 2000, and its change between 1995-2000 relative to the EU-15 average (% points)



Note: The number of regions in each category is given in parentheses.
Source: EUROSTAT's Newcronos Regio data.

During the socialist period, the income distribution in Central and Eastern Europe countries was rather uniform in comparison with Western economies. Thus, since the beginning of transition, the move to an open market has led to an increase in income differentials, and poverty has become a problem for larger shares of the population, particularly in Latvia, Bulgaria and Romania. On the other hand, poverty seems to be only a minor problem in Slovenia, Slovakia Hungary and Estonia (see Table 4.3). In line with the lower average per capita income in rural areas, the share of those living in poverty in rural areas is higher than in urban areas. This holds for all CEECs for which data are available. In general, the share of poor people in rural areas exceeds the national average by about the 1.2 fold. Only in Lithuania and Slovenia, the relative disparities between national and rural levels within the country are 1 : 1.7, whereby the national level of poverty is already very low, especially in Slovenia.

Since the poverty definitions applied differ between countries, one has to be careful when comparing them. Furthermore, for Bulgaria, it is reported that the share of the rural population living in poverty is overestimated in comparison with urban areas. Between 1995 to 2000, the measurement of poverty in this country did not take into account regional differences in consumption structures and prices.

Table 4.3: Share of population living in poverty (%)

	EST	LV	LT	PL	CZ	SK	H	SLO	ROM	BG
Year	2002	1998	2001	2000	n.a.	1996	2001	2000	1998	1997
Used definition of poverty	Below the minimum salary	n.a.	n.a.	UNDP estimates	n.a.	World-bank	n.a.	40% poverty line	National Human Development Report	World-bank
National average % of total population	14	60	16	24	n.a.	9	11	6	34	36
Rural areas % of rural population	17	74	27	n.a.	n.a.	n.a.	13	10	41	41
as per cent of national average	121%	123%	171%	n.a.	n.a.	n.a.	118%	167%	120%	114%

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Measuring the economic situation of rural areas by the indicator "unemployment rate" does not yield a clear picture: in six countries (Lithuania, Slovenia, Bulgaria, Hungary, Estonia, Slovakia) the unemployment rate in rural areas is above the national average (see Table 4.4). In Latvia, Poland, the Czech Republic and Romania, however, it is the opposite. Probably in all CEECs, there is still hidden unemployment, particularly in agriculture. Especially in Romania, where four in ten persons are employed in agriculture, this sector plays an important role as a social buffer. The similar probably holds for Bulgaria, where, however, statistics on agricultural employment do not provide a clear picture: whereas the labour farm survey reports a number of 0.34 million employed in this sector, the number is 1.6 million according to the agricultural survey. In the Czech Republic, hidden unemployment in agriculture is of minor importance according to the country experts. Comparing the unemployment rates across the countries, one has to bear in mind that the statistics are still not harmonised and that the incentives to register as unemployed differ, too.[6] Section 4.4 provides more information on unemployment in the new Member States.

Table 4.4: National and rural average unemployment rate (%) in 2001 (EST and CZ 2000; EU-15 1994-1996)

	EST	LV	LT	PL	CZ	SK	H	SLO [1)]	ROM	BG	CEECs	EU-15
National average % of total labour force	13.7	12.8	12.5	18.2	7.3	18.6	5.7	11.0 (6.4)	6.6	19.5	13.1	10.7 [2)]
Rural areas % of rural labour force	15.2	10.4	18.0	16.7	5.8	20.3	6.8	15.0 (11.0)	2.8	25.3		11.4 [2)]
as per cent of national average	111%	81%	144%	92%	80%	109%	119%	136% (172%)	42%	130%		107% [2)]

Notes: [1)] Data in brackets according to ILO definition. [2)] EU-15: Unemployment rate in *predominantly rural regions* (over 50% of the population living in rural communities with population density below 100 inhabitants / km^2) as share of national average 1994-1996.

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries. EU-15: EUROPEAN COMMISSION, DIRECTORATE GENERAL FOR AGRICULTURE (1997).

The summarising assessment of the country experts support the above results, that during the last five years, in most CEECs the disparities between rural and urban areas have increased (see Table 4.5). Concerning the GDP per capita, this holds for all countries except Lithuania and the Czech Republic, where no change has been reported. With regard to the share of the population living in poverty, Latvia, Slovakia, Romania and Bulgaria have experienced growing disparities, whereas the situation has not changed in Estonia, Lithuania, Hungary and Slovenia. In terms of the unemployment rate, the picture is more heterogeneous. In Latvia and Hungary, the unemployment rates in rural and urban areas have converged. However, it has to be taken into account that in Latvia, the rural unemployment rate is below the national average, whereas in Hungary, it is the opposite. In Estonia, Lithuania, Poland, Slovakia, Slovenia,

[6] For an overview on the social security systems in the CEE candidate countries in general and the unemployment insurance in particular, see EUROPEAN COMMISSION, DIRECTORATE GENERAL FOR AGRICULTURE [NETWORK OF INDEPENDENT AGRICULTURAL EXPERTS IN THE CEE CANDIDATE COUNTRIES] (2003).

Romania and Bulgaria the disparities have increased. For the Czech Republic no change has been reported.

Table 4.5: Development of the disparities between rural and urban areas during the last five years [1)]

	EST	LV	LT	PL	CZ	SK	H	SLO	ROM	BG
GDP per capita	+	++	O	+	O	+	+	+	+	+
Share of population in poverty	O	+	O	n.a.	n.a.	+	O	O	+	+
Unemployment rate	+	--	+	+	O	+	-	+	+	+

Note: [1)] ++ strongly increased; + increased; O no change; - decreased; -- strongly decreased.
Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

4.1.2 Country profiles

Evidence was sought for each country concerning the relative position of rural regions with regard to GDP per capita and the dynamics of change.

Estonia is a predominantly rural country. There are some 205 rural municipalities and 42 urban ones. The disparity between the centre and the periphery of eastern and western regions has recently been increasing. Localities that have been hit worst include declining industrial settlements, rural peripheries where agriculture has declined and small inhabited islands. The out-migration of young people from these declining areas adds to the downward cycle. According to the assessment of the country experts, the overall situation in rural living standards declined in the last five years opposite to the capital. GDP per capita in rural areas is about half of that in the capital, but infant mortality rates are fairly constant over all regions at around 8.5 deaths per 1,000 births, and that rate has almost halved over the last decade.

The situation in rural **Latvia** is dominated by the issue of unemployment and associated low incomes. Formal employment in agriculture has fallen dramatically but almost half of the rural population rely on subsistence farming for some part of their food according to the 2001 population census. Employment figures in rural areas are thus understated to the extent that family members work in an unpaid capacity on farms. Unemployment is higher in peripheral and remote areas, and also amongst younger people and those approaching pension-eligible age. GDP per capita is low for the country but much higher in the capital Riga. It is noteworthy that the degree of divergence from both the national level and that in the capital is much greater than in most other countries. The GDP per capita in the region of Latgale, at PPP 2,674, is one of the lowest in all the new Member States and is 4 times lower than the level in Riga. Recent analyses from the household survey show that this gap between incomes continues to grow. The infant mortality rate, at just over 11.3 deaths per 1,000 live births, is high but shows no discernable pattern between regions or for rural versus urban areas.

Lithuania has a diffuse spatial arrangement of towns so that most regions are of the mixed rural-urban type, together with two predominantly rural regions. Most regions have had a static situation in human welfare in the last five years, with four regions showing improvement and two regions declining. The spread of GDP per capita by region is slightly lower than in other countries, but nevertheless, the usual pattern of incomes in the capital being almost twice as high as in the poorest rural areas is easily discernable. The infant mortality rate is around the national mean of 8.7 in most regions, but is reported as being much higher in one region, Utenos, at 12.5.

Poland, as the largest new Member State, has 16 NUTS-2 regions with a mean national GDP per capita of PPP 8,951 as of the year 2000. GDP per capita in the capital region Mazowieckie, (including Warsaw) at PPP 13,351, is about 50% higher than the national average. Data on the rate of growth in GDP by region tend to show that the richest regions have grown at the fastest rates, which has increased the divergence of GDP per capita. If the Warsaw region is taken out, the association is less strong, which suggests that low levels of GDP need not necessarily constrain growth. There appears to be a tendency for marginal rural areas not

to have experienced any improvement in rural welfare, indeed, GDP per capita is lower in the more rural regions. There is also a wide dispersion in infant mortality rates, ranging from the mean for the nation of 8.9, to a high of 11.1 and a low of 5.6. Rural unemployment shows regional variation – the highest in 2001 amounted to 25-30% in the Western and Northwestern regions, where the share of former state farms was the highest. In the Southern and Southeastern regions where small farms with a large subsistence element dominate, lower rates of registered unemployment are concealed by high hidden unemployment in agriculture.

The **Czech Republic** is defined by three predominantly urban and five mixed rural-urban regions. Responses were qualified by the statement that there is probably more variation within regions than between them at this level of aggregation. Analysis at a much lower level of aggregation shows that the share of agricultural employment as a proportion of the total is well correlated with rural living conditions. Unemployment is strongly associated with the more urbanised areas where single industries such as coal mining have proved uncompetitive. Despite these qualifications, the data show that the GDP per capita levels are around twice the level in the Prague region (PPP 26,855 in 2000) than in the mixed rural urban regions, (between PPP 10,170 and 11,671 in 2000) and even when adjusted for purchasing power are still significantly higher. Infant mortality is about twice as high in the more rural regions, although at a level of 4-6 deaths per 1,000 births, is much lower than in many other new Member States.

Slovakia could be regarded as a country exhibiting the typical rural situation of the new Member States. The mean national GDP per capita of PPP 10,478 is unevenly distributed, with the level in the capital, Bratislava, more than twice the level than in the central and eastern regions. There are strong discrepancies between various regions, e.g., there is a much more active labour market in Western Slovakia compared with Central and Eastern Slovakia, and also strong discrepancies between labour market growth in urban and rural areas (the latter are much weaker, and some positive trends are only observable in rural areas located close to larger cities). Rural areas experience much higher poverty levels compared to urban regions, (with extreme poverty areas in some rural regions, sometimes in the midst of a relatively well-off population) and there are strong links between the level of rural poverty on one side, and unemployment and a low level of education on the other side. Moreover, the level of GDP per capita, and human welfare, is judged to be declining in these lagging regions. Human welfare as judged by infant mortality is more adverse in poor areas (11.9 deaths per 1,000 live births compared with the national average rate of 8.3).

Hungary has many rural sub-regions and large differences in prosperity between the centre and peripheral regions exist. On the NUTS-2 level, two regions are classed as predominantly rural, four regions as a mix of rural and urban areas and the Capital region as predominantly urban. Unemployment rates are slightly higher in rural areas, but are significantly greater in Northern Hungary, the Northern great plain and in Southern Transdanubia. Commuting to work is an established phenomenon. Conditions are either static or improving, but the GDP per capita in rural regions is around half that of the capital region. There is not much variation in infant mortality rates, which hover around a national mean of 8.4.

Slovenia is the most prosperous new Member State, with a national GDP level of PPP 15,255 approaching two thirds of the level in the EU-15. The dispersion of GDP per capita is not so marked as in other new Member States, although there are poorer areas, which tend to have lower rates of growth and even declining levels of human welfare. Among the poorest part of Slovenia are remote areas situated in the Northeastern part of Slovenia, particularly in the border areas with Hungary and Croatia. Social transfers to the rural population via retirement and state social pensions have mitigated rural poverty in Slovenia. Infant mortality at the national level is 4.5 per 1,000, but is up to three times higher than this rate in poorer regions.

Romania has a large rural population and a low GDP per capita at the national level of PPP 5,463. The capital region Bucharest has a typically higher GDP per capita at PPP 7,732.

The human development index shows a much higher level in the capital of 0.83, compared with other more rural regions of 0.74 to 0.76. Infant mortality rates are very high, ranging from the lowest rate in the capital of 12.9 deaths per 1,000 live births to a high of 20.9 in the poorest region, the Northeast (this is the highest rate reported for all the regions of the new Member States). Data on rural and urban income comparisons reveal a mean monthly rural income of some EUR 60.6 compared with a higher mean urban income of 76.9 (see Table 4.6).

Table 4.6: Monthly income of households by urban and rural areas in Romania, 2001

	Total monthly income of households		Monthly income per person	
	EUR	Ratio of urban/rural to total in %	EUR	Ratio of urban/rural to total in %
Urban households	217.4	108.5	76.9	110.7
Rural households	179.3	89.4	60.6	87.2
Total households	**200.4**	**100.0**	**69.5**	**100.0**

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries (Coordinates of living condition in Romania. Population incomes and consumption. NIS, Bucharest 2001).

Despite being poorer, there is a significantly worse and more skewed distribution of incomes in rural areas, with 41.5% of the rural households having an income of less than EUR 53.8 per month. In urban centres, 15.3% of households have an income of less than EUR 53.8 per month (see Table 4.7).

Table 4.7: Distribution of households by monthly average income in urban and rural areas in Romania, 2001

Monthly average income in EUR	Total households	Urban	Rural
Less than 53.8	26.9%	15.3%	41.5%
53.8 – 115.3	30.6%	29.8%	31.6%
115.3 – 269.0	33.7%	42.6%	22.6%
269.0 – 442.6	6.6%	9.5%	2.9%
More than 442.6	2.2%	2.8%	1.4%
Total	100.0%	100.0%	100.0%

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries (Coordinates of living condition in Romania. Population incomes and consumption. NIS, Bucharest 2001).

In **Bulgaria**, the data show that the country is essentially a rural one. The differences between the capital Sofia and other regions are marked. The south central region achieves the average GDP per capita of the other four predominantly regions as a result of a highly developed agricultural sector, but the Northwestern region is suffering due to the closure of many large enterprises in industry and manufacturing. Other regions which depend on tourism and agriculture show marked seasonal employment patterns. Human welfare is improving in at least three regions, but in others is either static or declining. The human cost of low living standards is shown by unacceptably high infant mortality rates of 11.9 deaths per 1,000 live births nationally, and up to almost 20 in the worst-performing region.

4.1.3 Summary of key points

Many people who live in rural regions of the new Member States, and especially those in predominantly rural regions, are poor as judged by the level of GDP per capita relative to the standards of the EU-15, and some are getting poorer. Some are living under conditions of extreme poverty, particularly in Latvia, Romania and Bulgaria. Some regions have very low mean GDP per capita, (the extreme case is Latgale in Latvia with PPP 2,674, in 2000) and as

shown by the Romanian data, the distribution of GDP levels is highly skewed. There is generally a very wide disparity between the incomes of those who live in cities, especially capital cities, and those who live in rural regions. The ratio between the poorest and the richest NUTS-3 region is highest in Poland (1:5.4 in 2000) and Latvia (1:4.3). This disparity is often getting wider as positive rates of economic growth are seemingly faster in wealthier regions. The variation coefficient of the NUTS-3 per capita income in the new Member States increased from 0.40 in 1995 to 0.46 in 2000. In comparison, the corresponding figures for the EU-15 are 0.35 and 0.36, respectively. Other measures of human welfare such as infant mortality are also unacceptably high in many CEE regions, although some poor regions have quite low rates. High unemployment and low educational achievements are also common features of the rural population, which are explored further below.

4.2 Population

4.2.1 Overview

Differences in demographic structures between rural and urban regions have an important influence on the economic dynamism and growth of rural areas, as well as on living standards and the provision of social services; these influences emerge as a result of differences in crude birth and mortality rates, as well as patterns of internal migration.

Rural areas in the CEECs have, according to the applied definition, a population density below the national average in all countries (see Table 4.8). This induces both less incentives for investment as well as difficulties in providing sufficient infrastructure. However, the population per square kilometre in rural areas significantly differs across the new Member States. Whereas in Estonian rural areas, only 18 persons inhabit a square kilometre (compared with the national average of 33), the corresponding figure for rural areas in the Czech Republic is 101 (compared with the national average of 130). In comparison with the respective national average, the rural population density is lowest in Poland, where it reaches 41% of the national average. In most of the other CEECs this share is between 47% and 59%. Population is more equally distributed in Slovenia (82%) and in the Czech Republic (75%).

Table 4.8: Population density in rural areas in comparison to national average

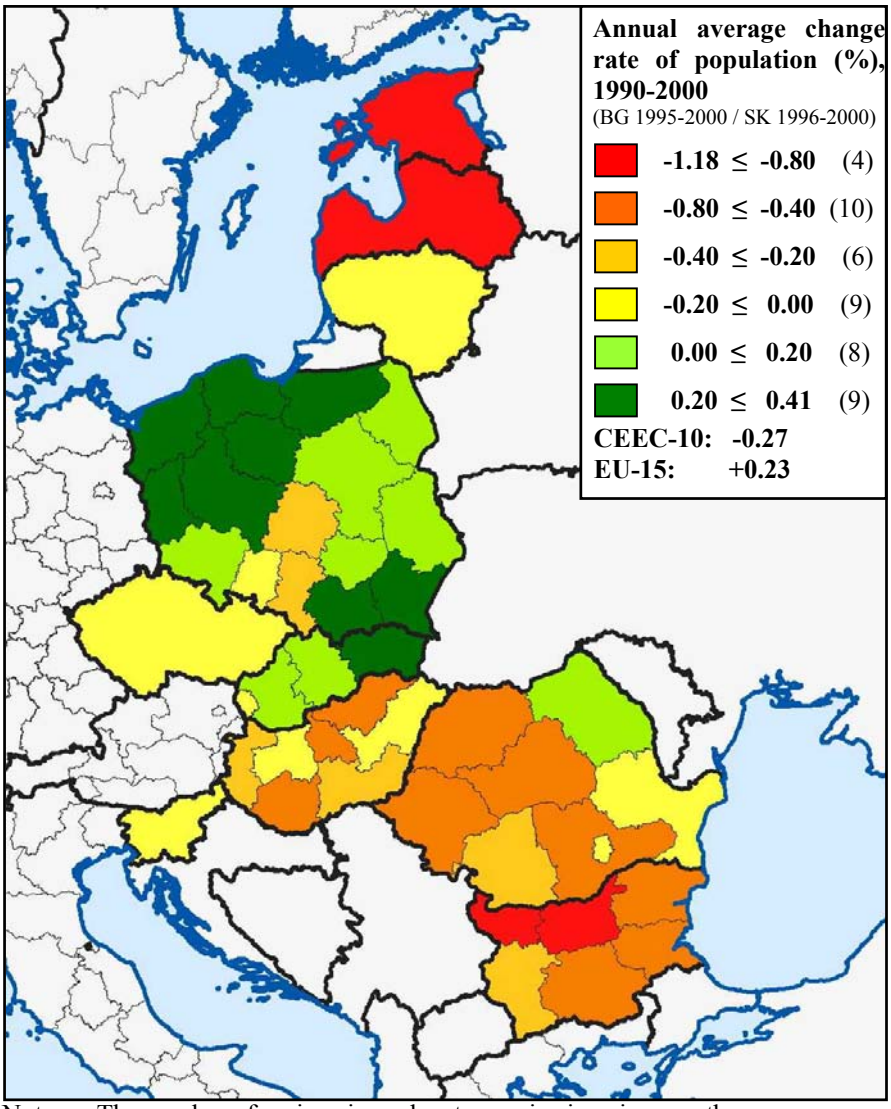
	EST	LV	LT	PL	CZ	SK	H	SLO	ROM	BG	CEECs	EU
Year	2000	2001	2001	2001	2000	2001	2000	2000	2001	2000	2000	2000
National average Inhabitants/km^2	33	37	53	124	130	110	109	98	94	73	97	119
Rural areas Inhabitants/km^2	18	n.a.	31	51	101	52	58	80	43	40	n.a.	n.a.
as per cent of national average	55%	n.a.	59%	41%	78%	47%	53%	82%	46%	55%	n.a.	n.a.

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Population development has shown, during the last 10 years in most CEECs, a general decreasing tendency (see Map 4.2), as opposed to the European Union, where the average annual change rate of population from 1990-2000 was +0.23, with a net migration rate per 1,000 inhabitants of +2.0 in 2000. In the CEECs, the steepest decrease took place in Estonia, Latvia and Nortwestern Bulgaria, with an annual average population change rate of about –1%. An increasing population is only observable in most Polish regions, Slovakia and NE-Romania. During transition, the birth rates have fallen, in all CEECs, below the EU average, which can be also seen in the decreasing number of children. The proportion of children aged 0-9 to those aged 10-19 was about 70-80% in 2000 in most CEECs, with the largest decrease in Estonia (65%) and the lowest decrease in Hungary (87%). Because this process has just taken place during the last decade, the share of young people in the new Member States is still relatively high in comparison with the EU (see Table 4.9). The declining population is caused by

these low birth rates, in connection with high death rates in many countries (except Poland and Slovakia) and general tendencies of out-migration.

Map 4.2: Annual average change rate of population 1990-2000 (%)



Note: The number of regions in each category is given in parentheses.
Source: Author´s computations based on EUROSTAT's Newcronos Regio data.

Within the countries there are different regional migration patterns. Data provided by the country experts show a trend of internal migration towards the respective capital regions (including hinterland) and other city regions. There is a tendency for better-off people to take up residence especially in pleasant rural surroundings outside cities. In the Czech Republic, where Prague is statistically separated from its surroundings, the loss in the number of inhabitants in the city itself and the moving out to the suburbs can be clearly seen. Also in Hungary, a study revealed a strong migrant stream directed towards metropolitan suburbs. However, a second smaller stream in Hungary can be also observed, i.e., towards remote villages in the rural periphery. The structure of these in-migrants in rural areas could not be clarified. But undoubtedly, many of them are steered to rural villages by the social network resources of kin and community and possibilities of self-supply. Thus, both Hungarian migration streams appear to be contingent on the availability of economic opportunities. The authors concluded that "migration is strongly positive where unemployment is lowest" (BROWN and SCHAFFT 2002, p. 242). Also in Romania, a “reverse migration” from urban to rural areas has occurred during transition due to high urban unemployment, the prospects of acquiring land, which offers the opportunity of producing food for own needs, and the low costs of living in rural areas. These findings disclose that rural areas do not always show the highest out-migration.

More decisive than absolute numbers of in- or out-migrants seems to be the characteristics of these migrants, but data are widely lacking.

A clue for the structures of migrants can be provided by the dependency ratios of regions which are, however, also influenced by birth rates. Birth rates tend to be higher in rural areas than in urban centres, so that the youth dependency ratio (proportion of young people aged 0-19 to those aged between 20-59) is also higher in rural regions (see Table 4.9). Map 4.3 shows that nearly all capital regions (except in Poland and Slovenia) have the lowest youth dependency ratio in their respective countries. Higher birth rates in rural regions represent a challenge for providing sufficient possibilities of education and employment in these less populated areas with deficient capital. On the other hand, high shares of children can also be an opportunity, because they offer a sufficient number of young future employees for companies that are possibly interested in investment. However, when young people reach working age, an increasing outward migration is assumed, resulting in a high age dependency ratio (proportion of people aged 60 and over to those between 20-59) and high death rates in rural areas (see Table 4.9). High age dependency ratios will put pressure on public budgets from the sides of pension and health insurance, which is an increasing problem all over Europe. They vary in the CEE regions between 25.7% in Northern Poland and 53.4% in Northeast Bulgaria, (see Map 4.3) but are, on average, still lower than in the EU-15.

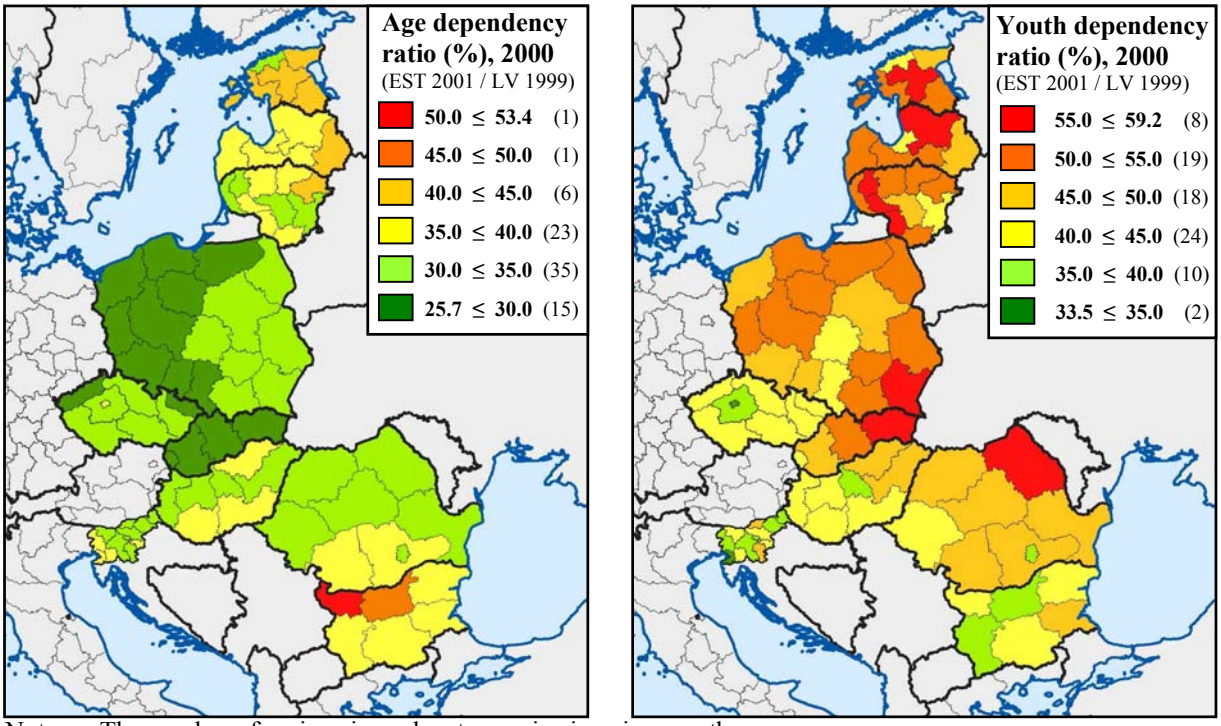
Table 4.9: National and rural youth and age dependency ratios (%), crude birth and crude death rates, 2000 [1)]

	EST	LV	LT	PL	CZ	SK	H	SLO	ROM	BG	CEECs	EU
Youth dependency ratio [2)] national	**47.6**	**47.5**	**49.8**	**49.3**	**40.1**	**49.7**	**41.6**	**40.2**	**47.1**	**41.0**	**46.3**	**42.8**
Rural areas	56	n.a.	n.a.	58.4	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Age dependency ratio [3)] national	**39.7**	**37.5**	**34.0**	**29.9**	**31.2**	**27.2**	**34.7**	**33.0**	**33.8**	**39.1**	**32.4**	**37.2**
Rural areas	44	n.a.	n.a.	33.6	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Crude birth rate national	**9.6**	**8.5**	**9.2**	**9.8**	**8.8**	**10.2**	**9.7**	**9.1**	**10.4**	**9.1**	**9.7**	**10.7**
Rural areas	9.3	n.a.	10.3	11.5	n.a.	n.a.	10.1	n.a.	11.5	n.a.	n.a.	n.a.
Crude death rate national	**13.5**	**13.6**	**10.5**	**9.5**	**10.6**	**9.8**	**13.5**	**9.3**	**11.4**	**14.1**	**11.0**	**9.9**
Rural areas	13.6	n.a.	15.2	10.1	n.a.	n.a.	14.6	n.a.	14.6	n.a.	n.a.	n.a.

Notes: [1)] ADR and YDR in EST 2001, LV 1999, EU 1997; CBR and CDR in EU 1999. [2)] Proportion of young people aged 0-19 to those aged between 20-59. [3)] Proportion of people aged 60 and over to those between 20-59.

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries. EUROSTAT's Newcronos Regio data.

Map 4.3: Age and youth dependency ratios in the CEE regions in %, 2000



Note: The number of regions in each category is given in parentheses.
Source: EUROSTAT's Newcronos Regio data.

Despite higher death rates and age dependency ratios in rural areas, the statement that individual farmers tend, in general, to be over-aged, cannot be confirmed. Table 4.10 shows that in many countries, approximately one fourth of the agricultural labour force is younger than 35. Estonia and Poland also show high shares of the agricultural labour force older than 65, whereas it is marginal in Slovakia, the Czech Republic and Hungary.

Table 4.10: Proportion of agricultural labour force less than 35 and more than 65

	EST	LV	LT	PL	CZ	SK	H	SLO	ROM	BG
Year	2002	n.a.	n.a.	n.a.	2000	2002	n.a.	n.a.	n.a.	n.a.
Proportion of agricultural labour force younger than 35 (in %)	25 (rural 24)	n.a.	n.a.	42.9 [1)]	22	25.7	40.9 [2)] (rural 53.7)	n.a.	n.a.	n.a.
Proportion of agricultural labour force older than 65 (in %)	23 (rural 22)	n.a.	n.a.	20.6	2	0.3	2.5 [2)] (rural 0.9)	n.a.	n.a.	n.a.

Notes: [1)] 18-44. [2)] 15-39 and more than 60.
Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

The following country profiles point out some particular characteristics in age structure and migration of the single countries.

4.2.2 Country profiles

In **Estonia**, the rural age dependency ratio, at 44%, is considerably higher than the national level of 39.7%, as is the very high youth dependency ratio of 56% against the national mean of 47.6% (see Table 4.9). The capital region Pöhja-Eesti has the lowest dependency ratios. No data is available regarding migration patterns.

Regional dependency ratios for **Latvia** show the lowest youth dependency rate in the capital region, whereas Zemgale, south of Riga, has the lowest value for age dependency. Age dependency (as well as crude death rate) is highest in the peripherian region Latgale at the Western border with above 40%, which shows, in addition to Kurzeme, on the Eastern coast, a high rate of out-migration. The capital Riga also has considerable out-migration, while the

only region with positive net migration is Vidzeme, the neighbouring region Northeast of Riga (see Table 4.11). Although there is no data about age structure of the agricultural labour force, the point is made by the experts that those engaged in subsistence agricultural activities are increasingly elderly.

Table 4.11: Net migration per 1,000 inhabitants in Latvian regions, 2000

	Crude rate of net migration per 1,000 inhabitants
Latvia	**-0.8**
Riga	-0.9
Vidzeme	+0.7
Kurzeme	-2.0
Zemgale	-0.3
Latgale	-1.3

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

The rural population in **Lithuania** increased slightly in 1993 and 1994 (less than 1% in two years), but has shown a slow decline since then. However, because the urban population has also been falling, the share of the rural population increased by 1 percentage point from 1993 to 2001, and now forms 33.1% of the total. The rural population is older than the urban one, with a greater proportion of people over 60 and a smaller proportion of the population of working age (see Table 4.12).

Table 4.12: Age composition of rural and urban population in Lithuania (%), Jan 1

Population by age groups	1990	2001	2002
Rural	**100**	**100**	**100**
0-14	22.1	21.3	20.6
15-59	55.2	55.3	55.8
60+	22.7	23.5	23.6
Urban	**100**	**100**	**100**
0-14	22.9	18.9	18.2
15-59	64.3	64.0	64.3
60+	12.8	17.1	17.5

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

The rural child dependency ratio (proportion of children aged 0-14 to the active population between 15 and 59) is also higher than the urban rate. This corresponds with higher crude death and birth rates in rural areas compared to national averages (see Table 4.9). The highest in-migration is shown by the regions around Kaunas and Vilnius, whereas the Western regions Klaipeda, Telsiai and Marijampole are the only areas with out-migration (see Table 4.13).

Table 4.13: Net migration per 1,000 inhabitants in Lithuanian regions (recent year)

	Crude rate of net migration per 1,000 inhabitants
Alytus	+0.1
Kaunas	+0.9
Klaipeda	-0.2
Marijampole	-0.0
Panevezys	+0.2
Siauliai	+0.1
Taurage	+0.1
Telsiai	-0.1
Utena	+0.2
Vilnius	+0.8

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

In **Poland**, the dependency ratios in rural areas, as well as birth and death rates, exceed the national average significantly (see Table 4.9). Poland's population is, in general, rather young:

The national youth dependency ratio is the highest of all CEECs, whereas the age dependency ratio belongs to the lowest one. The whole country has a positive net-migration of +0.4. Only five Eastern Polish regions show out-migration. The highest in-migration can be observed in Southern Polish regions and the Baltic coast around Gdansk. Agricultural labour has a significantly high share of people aged 18-44, (42.9%) as well as of people aged over 65 (20,6%). There is a high regional variation, (see Table 4.14) but no correlations between dependency ratios, migration or older agricultural workers can be seen.

Table 4.14: Net migration per 1,000 inhabitants in 2001 and proportion of agricultural labour force younger than 45 and older than 65 in Polish regions (in %)

	Crude rate of net migration in rural areas per 1,000 inhabitants	Proportion of agricultural labour force younger than 45 (18-44)	Proportion of agricultural labour force older than 65
Poland	**+0.4**	**42.9**	**20.6**
Dolnoslaskie	+1.5	41.7	19.8
Kujawsko-Pomorskie	+0.5	52.9	8.4
Lubelskie	-1.6	42.3	21.1
Lubuskie	+0.7	42.0	18.0
Lodzkie	-0.2	43.6	18.2
Malopolskie	+1.4	38.9	25.9
Mazowieckie	+1.2	45.1	18.0
Opolskie	+1.1	42.5	20.4
Podkarpackie	+0.2	35.4	28.6
Podlaskie	-3.6	45.4	21.6
Pomorskie	+1.6	51.0	11.9
Slaskie	+2.8	35.2	27.9
Swietokrzyskie	-0.9	39.7	24.8
Warminsko-Mazurskie	-3.6	51.6	11.3
Wielkopolskie	+1.4	50.2	12.6
Zachodniopomorskie	+0.4	41.7	20.8

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

In the **Czech Republic,** the capital has the lowest youth dependency ratio, the highest age dependency ratio and out-migration, whereas Strední Cechy – the surrounding region of Prague – shows the highest in-migration (see Table 4.15). The other Czech regions do not diverge significantly in age structures and migration patterns.

Table 4.15: Net migration per 1,000 inhabitants in Czech regions, 2000

	Crude rate of net migration per 1,000 inhabitants
Praha	-6
Strední Cechy	+4
Jihozápad	0
Severozápad	0
Severovýchod	-1
Jihovýchod	-1
Strední Morava	0
Moravskoslezko	-2

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

An old age structure of farmers presents no problem in the Czech Republic, where 15% of the individual farmers are older than 55 and only 1% over 65 (see Table 4.16). No large differences between regions are observable.

Table 4.16: Proportion of agricultural labour force and individual farmers younger than 45 and older than 65 in the Czech Republic (in %)

	Total labour			Under 35			Over 65		
	all	male	female	all	male	female	all	male	female
Agricultural labour	100%	65%	35%	22%	16%	6%	2%	1%	0%
Entrepreneurs (indiv. Farmers)	100%	85%	15%	18%	16%	2%	1%	1%	0%

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries (Agrocensus 2000).

Slovakia has increasing birth and youth dependency rates from the West to the East, with very high youth dependency ratios of over 50% in the Central and Eastern region. The age dependency ratio scarcely varies between regions on a low level. Migration patterns show a low rate of net outward migration from Eastern regions, and positive inward rates in the capital and Western region (see Table 4.17).

Table 4.17: Net migration per 1,000 inhabitants in Slovakian regions, 2001

	Crude rate of net migration per 1,000 inhabitants
Slovakia	**+0,2**
Bratislava	+1.6
West	+0.3
Middle	-0.4
East	-0.6

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Age dependency in **Hungary,** at 34.7%, does not vary much between regions, and is lowest in the capital region. Also, the youth dependency ratio is lowest in the capital, but considerably higher in all other regions, and especially in the more rural regions, reaching levels of up to 45%. The birth and death rates have a higher value in rural regions compared to the national average (see Table 4.9). There is a very high rate of positive net migration into Central Hungary (Budapest) of 15 persons/1,000 annually, but much lower rates of net outflow from the more peripheral regions. Rural areas do not merely experience out-migration, but an average in-migration of +1.9, which is, however, lower than the national average (see Table 4.18).

Table 4.18: Net migration per 1,000 inhabitants in Hungarian regions, 2000

	Crude rate of net migration per 1,000 inhabitants
Hungary	**+2.5**
Central Hungary	+15.1
Central Transdanubia	+4.6
Western Transdanubia	+3.4
Southern Transdanubia	-0.1
Northern Hungary	+0.1
Northern Great Plain	-1.5
Southern Great Plain	+0.5
Rural	**+1.9**

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Slovenia has one of the lowest dependency ratios among the CEECs. High youth dependency ratios above 40% can be found only in the Northern and Southern regions of the country. Regions around the capital region Osrednjeslovenska have the highest in-migration. Negative net migration is shown by border regions in the North, East and West (see Table 4.19).

Table 4.19: Net migration per 1,000 inhabitants in Slovenian regions, 2001

	Crude rate of net migration per 1,000 inhabitants
Pomurska	-0.6
Podravska	+1.8
Koroska	-1.3
Savinjska	+1.1
Zasavska	-0.1
Spodnjeposavska	+2.2
Gorenjska	+0.2
Notranjsko-kraska	+3.1
Goriska	-0.1
Obalno-kraska	+4.1
Jugovzhodna Slovenija	+0.8
Osrednjeslovenska	+2.9

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

The crude birth rate in **Romania** from 2000 is the highest of all CEECs. Within the country, the birth rate and youth dependency ratio are lowest in Bucharest, whereas both are extremely high in the Northeast. In rural areas, birth and especially death rates are higher than the national average (see Table 4.9). Migration rates are generally low, but show a tendency for people to move to Bucharest. All regions except Bucharest and Central have negative rates of net migration. Interestingly, the net migration of rural areas shows a positive value of +0.9, indicating reverse urban-rural migration in Romania (see Table 4.20).

Table 4.20: Net migration per 1,000 inhabitants in Romanian regions, 2001

	Crude rate of net migration per 1,000 inhabitants
Northeast	-0.9
Southeast	-0.2
South	-0.9
Southwest	-0.3
West	-1.7
Northwest	-0.8
Central	+0.4
Bucharest	+2.7
Rural	**+0.9**

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries (INS Publication – "Internal migration due to a permanent residence change").

In **Bulgaria**, data regarding demographic structures of the rural population is missing. But a comparison of the capital region with the remaining five predominantly rural regions shows that the capital region Yugozapaden has the lowest youth dependency ratio and one of the lowest age dependency ratio and crude death rates. It also possesses high in-migration at +5.6, whereas the other regions feature net outward migration (see Table 4.21). Out-migration is most pronounced in the Northwestern areas, which also have the highest age dependency ratios of Bulgaria (above 45% and 50%, respectively) and even of all new Member States (see Map 4.1).

Table 4.21: Net migration per 1,000 inhabitants in Bulgarian regions, 2001

	Crude rate of net migration per 1,000 inhabitants
Severozapaden	-4.0
Severen Tsentralen	-3.0
Severoiztochen	-2.2
Yugozapaden	+5.6
Yuzhen Tsentralen	-0.8
Yugoiztochen	-1.9

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

4.2.3 Summary of key points

Rural areas have a population density that is in general 41-59% below the national average. This induces both less incentives for investment as well as difficulties in providing sufficient infrastructure. Within the last decade, the whole population of the CEECs (except most Polish regions, Slovakia and Northeastern Romania) decreased, the result of low, falling birth rates, high death rates and out-migration.

Internal net migration rates are on the whole low, but there is a detectable tendency for people to migrate away from peripheral regions to the capital regions (e.g., in Slovakia, with a net migration rate in the Eastern border region of –0.6 persons/1,000 inhabitants, and in Bratislava of +1.6 persons/1,000 inhabitants). The metropolitan suburbs especially gain in population, as observable in the surroundings of Prague, while the city itself loses inhabitants (-6 persons/1,000 inhabitants) and a positive net migration in the surrounding Střední Cechy (+4 persons/1,000 inhabitants). However, rural areas are not always regions of out-migration. Net in-migration in rural areas is taking place, for instance, in Hungary (+1.9 persons/1,000 inhabitants) and Romania (+0.9 persons/1,000 inhabitants). More decisive than absolute numbers of in- or out-migrants seem to be the characteristics of these migrants.

Data of regional age structures reveal higher birth and death rates and higher dependency ratios in many rural areas, which reduces the size of the active population. The youth dependency ratio is, in general, lowest in the capital regions, whereas it is higher in rural areas. This is observable, for example, in rural Poland, with 58% compared to the national value of 49.3% (all CEECs: 46.3%).

The important issue to emerge from this analysis is how to provide sufficient education and employment opportunities for the high proportion of young people relative to the active population in many rural areas of the new Member States. If this task could be managed, the high share of young people could also be a chance for rural areas, because the availability of young (and educated) employees are an important factor for the investment of companies. However, at present, a tendency of out-migration of young people of working age from rural areas can be assumed, resulting in higher age dependency ratios, as shown in the 44% of rural Estonia (national: 39.7; all CEECs: 32.4%). In the peripheral region Latgale in Latvia, for example, the out-migration (–1.3 persons/1,000 inhabitants) and age dependency ratios (41.4%) belong to the highest of the country. The same holds true for Severozapaden in Northwestern Bulgaria, with a net migration rate of –4.0 persons/1,000 inhabitants and an age dependency ratio of 53%. High age dependency ratios stand for a relatively small size of the active population of working age and will put pressure on the public budgets from the sides of pension and health insurance, which is an increasing problem all over Europe.

However, despite higher death rates and age dependency ratios in rural areas, the statement that individual farmers tend in general to be overaged, cannot be confirmed. All countries where data was provided show a considerably high proportion of the agricultural labour force under 35. Proportions of the agricultural labour force over 65 are marginal in the Czech Republic (2%), Slovakia (0.3%) and Hungary (2.5% over 60), whereas they are higher in Poland

(21%) and Estonia (23%). In Latvia, the point is made by the experts that especially those engaged in subsistence agricultural activities are increasingly elderly.

Beside disadvantageous age structures, the educational level of farmers and of the rural population in general is decisive for successful farm management and for investing companies. Deficits in this field shall be discussed in the following section.

4.3 Education

4.3.1 Overview

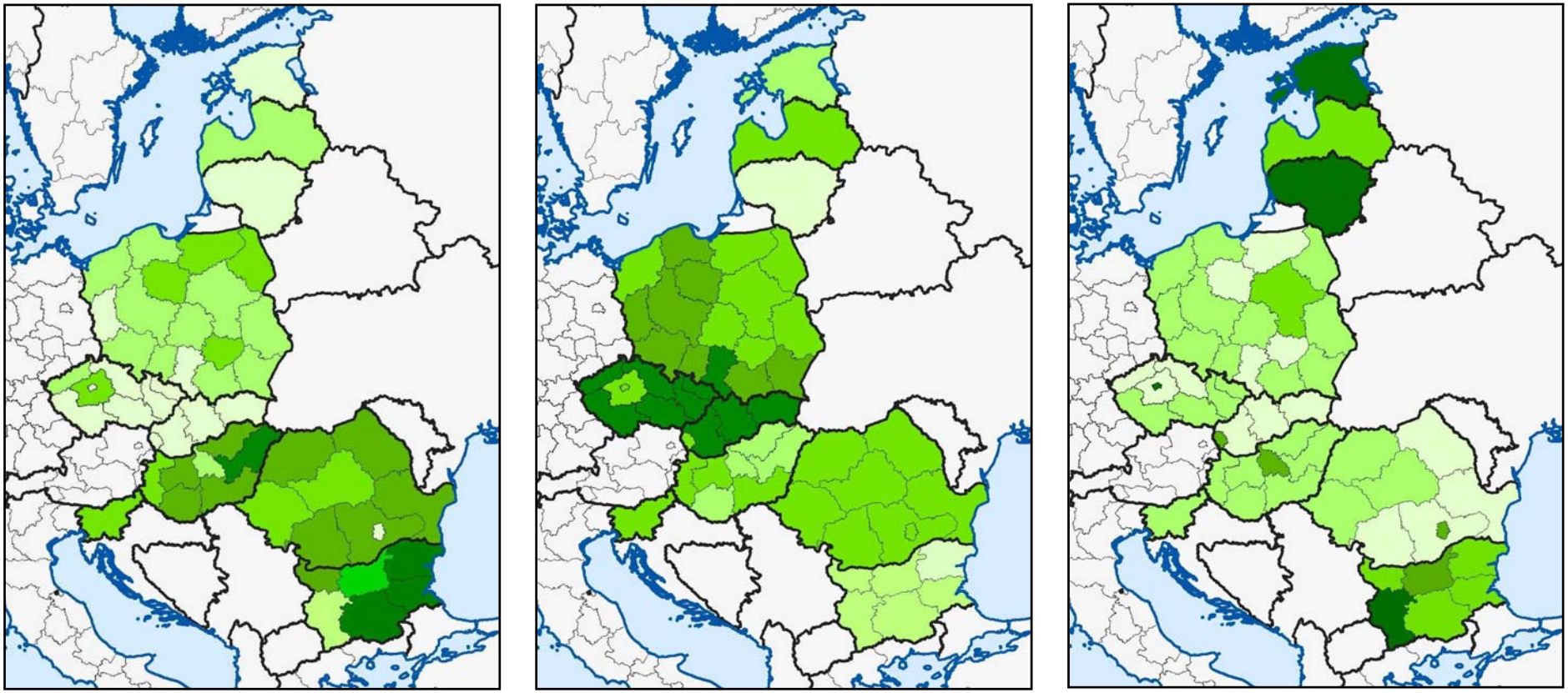
Differences in human capital are a main determinant of a region's development potential. A general regional overview of the educational level of the population aged 25 to 59 years, grouped into low, medium and high classes, reveals a rather high standard of education in the new Member States – under the assumption that the classification is in fact comparable across countries (see Map 4.4). In all countries, a pronounced share of *medium* education, of at least 41.9%, is observable (compared to the EU-15 average of 43.5% in 2001). The Czech Republic and Slovakia have even more than 75% medium education. The *high* educational level reaches the maximum values in Estonia, Lithuania and the Sofia region, with more than 25% of those aged 25 to 59 years (EU-average 22.3%). In contrast, high shares of *low* educational level show the rest of Bulgaria, as well as Romania and Hungary, with values above 25% (EU-average 34.2%).

An important empirical question is how different are the educational attainments of the population in *rural* regions as opposed to more *urban* regions. Map 4.4 shows differences in the educational level of the capital regions opposed to more rural regions, as, for example, in Bulgaria, Romania and the Czech Republic. This section analyses information provided by the country experts about the rural population's relative educational attainments. Thereby, the availability of detailed and comparable data occurs as problem.

A second question concerns the educational attainments of the agricultural workforce, especially of older male workers, which may make it difficult for them to find alternative employment. What are the educational standards of farmers and agricultural workers by age and gender in the new Member States? Table 4.22 reveals that the educational levels of the agricultural population (and rural population, respectively) lay significantly below the average standard of the total population. The share of *low* educational level in the active population in agriculture is 1.4 times (Poland) to 4.1 times (Slovakia) higher than the respective share of the total population. In contrast, the share of *high* educational levels in the active agricultural population ranges from 14% (Slovenia) to 52% (females in Estonia) of the standard of the total population. Data on different age groups are not available. Women in agriculture have, in two of the four countries that provided data, a slightly lower educational level than men.

The stock of educational attainment represents decisions made by rural families in the past, as modified by migration patterns. To assess how rural-urban differences may be evolving over time, it is important to look at the educational participation of the younger generation. Is rural education improving or otherwise deteriorating as measured by the educational achievements of young people relative to their parents? Is the rural educational system, as measured by participation rates, remaining in line with the provision in more urban regions? Educational outcomes will also reflect differences in educational provision, including the quality of schools, teachers, etc., in rural areas compared to more urban regions. It is also important to take into account gender differentials in schooling experience. This section analyses the rather patchy information which was available in the reports of the country experts to address these issues.

Map 4.4: Educational level of the population aged 25-59 in %, 2001



Low

% of total population aged 25-59

5.3 ≤ 15.0	(15)
15.0 ≤ 20.0	(14)
20.0 ≤ 25.0	(10)
25.0 ≤ 30.0	(10)
30.0 ≤ 33.8	(4)

Medium

% of total population aged 25-59

41.9 ≤ 50.0	(2)
50.0 ≤ 60.0	(10)
60.0 ≤ 70.0	(23)
70.0 ≤ 75.0	(8)
75.0 ≤ 79.1	(10)

High

% of total population aged 25-59

7.1 ≤ 10.0	(14)
10.0 ≤ 15.0	(25)
15.0 ≤ 20.0	(6)
20.0 ≤ 25.0	(4)
25.0 ≤ 46.6	(4)

Note: The number of regions in each category is given in parentheses. Source: COMMISSION OF THE EUROPEAN COMMUNITIES (2003).

Table 4.22: Educational levels of agricultural, as well as rural population in comparison to total population

Country	Indicator [1]	Total			Male			Female		
		Low	Med.	High	Low	Med.	High	Low	Med.	High
Estonia	Agricultural %	n.a.	n.a.	n.a.	23.1	67.4	9.5	31.9	47.9	20.2
	Total %	n.a.	n.a.	n.a.	13.0	62.7	24.3	8.6	52.7	38.7
Latvia [2]	Total %	n.a.	n.a.	n.a.	33.6	53.8	12.5	32.5	51.5	16.0
Lithuania [3]	Rural %	52.2	42.9	4.9	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	Total (25-59) %	11.5	41.9	46.6	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Poland	Agricultural %	44.3	53.1	2.7	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	Rural %	44,5	52.1	3.4	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	Total %	31.8	58.8	9.4	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Czech Rep.	Agricultural %	n.a.	n.a.	n.a.	11.7	82.4	5.9	26.6	70.4	3.0
	Total %	n.a.	n.a.	n.a.	15	73	12	27	64	8
Slovakia [4]	Agricultural %	n.a.	n.a.	n.a.	16.3	79.0	4.7	27.9	70.4	1.8
	Total %	n.a.	n.a.	n.a.	4.0	85.3	10.7	8.7	80.0	11.3
Hungary	Agricultural %	n.a.	n.a.	n.a.	32.8	58.2	9.0	35.6	52.4	12.0
	Total (25-59) %	26.1	59.5	14.4	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Slovenia	Agricultural %	68	30	2	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	Total (25-59) %	22.8	62.6	14.6	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Romania [5]	Rural %	24.8	73.4	1.8	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	Total %	14.2	76.5	9.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria [6]	Agricultural %	58.0	37.4	4.6	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	Total %	38	43	19	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Notes: [1] Refers to the shares of the different levels of education in the agricultural/rural active population and in the total population aged 20-59, respectively. [2] Latvian figures for November 2001. [3] In Lithuania, the percentages refer to all those living in rural areas and not just working in the agricultural sector. The proportions for men and women are reported to be very similar. [4] Experts´ calculations based on Slovak Statistical Office data. [5] Romanian figures are for total population distinguished on the basis of rural, rather than agricultural. [6] The proportions for men and women in Bulgaria are reported to be very similar. The data are for 2002.

Source: Educational level of agricultural/rural population and of the total population in EST, LV, PL, CZ, SK, ROM and BG: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries. Educational level of the total population aged 25-59 in LT, H, SLO: COMMISSION OF THE EUROPEAN COMMUNITIES (2003).

4.3.2 Country profiles

Estonian data clearly show the relationship between educational level and the sector of economic activity (Table 4.23).

Table 4.23: Number of employed people by education level [1] and sector of economy in Estonia (%), 2nd quarter 1999

Sector of economy	First level	Second level	Vocational secondary education	Higher education
Primary sector	29.1	57.3	4.7	8.9
Secondary sector	13.8	64.2	8.6	13.4
Tertiary sector	7.9	52.9	13.0	26.3
TOTAL	11.6	56.9	10.9	20.7

Note: [1] Levels of education in Estonia: first level - elementary and basic education; second level - secondary education, vocational education, vocational secondary education after basic education; third level - secondary vocational education after secondary education; higher education, master and doctor degree.

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries ("Labour Force 1999").

Those working in agriculture are much less likely to have a third-level qualification and much more likely to have left school after the primary level. The same pattern also holds if the contrast is made between rural households in general and the country at large, (Table 4.24) even though the national level totals do not appear to be consistent with each other. Female educa-

tion levels in rural areas tend to be marginally ahead of those of males, although the difference is not significant.

Table 4.24: Educational achievements in regions and rural areas of Estonia, 2000

	% of the population with primary education		% of the population aged 15 and over with secondary education (high school/professional school)		% of the population aged 23 and over with tertiary education (university and college)	
	Male	Female	Male	Female	Male	Female
Nation	29.0	27.0	49.5	51.8	14.9	16.5
Põhja-Eesti	22.9	19.9	53.5	55.1	21.7	22.7
Lääne-Eesti	37.3	34.4	45.5	49.4	8.5	9.9
Kesk-Eesti	28.3	28.0	55.1	54.1	11.3	12.8
Kirde-Eesti	36.7	33.9	45.6	49.4	9.0	10.9
Lõuna-Eesti	33.0	30.5	48.0	50.7	11.8	14.1
Rural	39.0	36.1	43.2	45.7	8.8	10.5

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries (Population census June and July 2000).

Data of educational achievements by age group reveal that the older generation, aged 35 and over, has a better educational structure than the younger generation aged less than 35. This general deteriorating of education does not, however, affect the relation between rural areas and national average, which has stayed stable between the different age groups (Table 4.25).

Table 4.25: Educational achievements by age group in Estonia, 2000

	% of the population aged 15 and over with secondary education (high school / professional school)				% of the population aged 23 and over with tertiary education (University and College)			
	less than 35		*more* than 35		*less* than 35		*more* than 35	
	M	F	M	F	M	F	M	F
Nation	18.2	19.5	30.8	32.3	5.6	6.2	9.3	10.3
Põhja-Eesti	20.2	20.7	33.3	34.4	8.2	8.6	13.3	14.1
Lääne-Eesti	17.2	18.8	28.3	31.1	3.2	3.7	5.3	6.2
Kesk-Eesti	20.7	20.4	34.4	33.7	4.3	4.8	7.0	8.0
Kirde-Eesti	17.2	18.7	28.4	30.7	3.4	4.1	5.6	6.8
Lõuna-Eesti	18.1	19.5	29.9	32.2	4.5	5.3	7.3	8.8
Rural	16.3	17.2	26.9	28.5	3.3	4.0	5.5	6.5
as percentage of national proportion	89.6%	88.2%	87.3%	88.2%	58.9%	64.5%	59.1%	63.1%

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

There is a uniform educational system across the country, with the rural-urban differences being mainly qualitative, with lower levels of staff qualification in rural schools, few special schools and less access to information technology. All of these factors make it harder for rural children to compete for university places. These problems are being actively challenged through the concentration of rural schools, greater degrees of more local forms of school management, and such programmes as the "tiger jump" programme in IT. Plans for the near future include continuing school concentration in rural areas, developing rural private schools similar to those in urban areas and equalising teaching opportunities between urban and rural schools.

The tendency for an increasing need for staff with certain qualifications has appeared in rural areas over the last two years: specialists and technicians (19%), top specialists (14%), and equipment and machine operators and workers (6%). The relative share of legislators, senior officials and managers and service and sales personnel has increased very slowly (1%) in rural employment. The relative share of agricultural and fisheries' skilled labour (18%), officials (12%) and skilled and manual workers (9%) has significantly decreased.

Main problems given by EU integration are seen as harmonisation of the field of Tertiary Education with EU support programmes, co-financing problems and the optimisation of professional education, (professional schools) taking into account the real demand for working forces inside of EU.

In **Latvia**, data confirm the common situation of the rural population being formally less well-educated than its urban counterparts, although differences seem not to be sizable (see Table 4.26). Those with only primary education are limited to unskilled jobs and subsistence work, respectively. The decline in manufacturing employment has hit this group hardest.

Table 4.26: Population proportions in relation to education levels from the age of 15 (%) in Latvia, 2000

Education level	In the state	Rural territory	Rural territory minimum-maximum
Population aged from 15 years	**82**	**79**	**70 – 86**
% of which attended			
less than 4 grades	2	3	0.3 – 13
Primary school education	4	6	1 – 16
Elementary school education	20	26	14 – 41
general secondary education	23	21	8 – 31
special secondary education	15	13	5 – 23
higher education	10	6	1 – 14
Education not specified	8	4	0.4 – 10

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries (LSIAE, according to CSB results of population census in 2000).

Tertiary education is mainly confined to urban centres. A growth in the number of higher education students in rural areas has taken place, but is still biased towards larger, urban areas. Table 4.27 shows the concentration of tertiary educational institutions and students in the capital Riga. This situation is likely to accelerate out-migration. EU integration presents better opportunities for high achievers, but is, in the short- to medium-term, unlikely to change the situation for low or medium achievers.

Table 4.27: Number and enrolment at tertiary educational institutions in Latvian regions at the beginning of the school year 2001/02

	Tertiary education: University and College		
	Number of institutions	Enrolment	Enrolment in % of total population
Latvia	**39**	**110,500**	**4.5**
Riga	33	87,649	8.8
Vidzeme	1	575	0.2
Kurzeme	2	4,998	1.5
Zemgale	1	8,920	2.5
Latgale	2	8,358	2.1

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Life-long learning is poorly developed in rural areas. The Latvian Agricultural Advisory and Training Centre (LAAC) does have a department of training and further education. However, these services are limited by budgetary constraints (perhaps 5,000 users p.a.).

Along with land reform**, Lithuania** experienced a revival and decentralization of small primary education schools, so that primary education in rural areas has no substantial problems. Secondary schools are concentrated in villages and townships to ensure quality education. On this level, as well as in higher education, improvements to training facilities and computerization are necessary. No major changes occurred in the location of specialized professional schools, colleges and universities. Curricula have been adjusted to emerging farm needs, including such courses as farm accounting, management, marketing, etc. Further adjustments in curricula should include EU-related training. The national educational level shows a slight de-

creasing tendency with a lower share of tertiary education for the generation aged 25-34 in comparison to the age group 35-49 (see Table 4.28).

Table 4.28: Educational level by age groups in Lithuania, 2003

Age group	high	secondary	basic	primary and less	not indicated
10 - 24	5,9	20,1	23,2	50,4	0,4
25 - 34	45,3	41,2	11,7	1,3	0,5
35 - 49	54,5	37,4	6,5	1,0	0,5
50 - 64	39,4	24,2	20,1	15,8	0,5
65+	16,3	11,6	12,5	59,2	0,4
Unknown	4,3	6,7	3,4	4,3	81,3
Total	**32,0**	**27,2**	**15,0**	**25,4**	**0,5**

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries (Statistical Yearbook 2003).

In **Poland**, the rural population is less formally-educated than the general population. Even so, just over half of the rural population hold a secondary school qualification compared with a national rate of 58.8%. Very few rural people (3.4%) have any tertiary level qualification, compared with 9.4% at the national level. No big differences are observable between the rural and agricultural population (see Table 4.22). Rural areas are well-covered with a net of primary schools. However, the education of rural children is more difficult due to financial constraints in both educational institutions and within rural families, especially as more specialised and advanced education (in languages and IT, for example) involves travel to towns. To continue at the secondary level, most students have to move to urban areas, where they may find a wide range of different types of high schools. Rural children who stop their education at the primary level, or after completing vocational school, usually stay on farms or find a job in local small businesses. Those who continue their education in agricultural high schools very often take over the farm of their parents (there is a growing number of farmers with secondary level education) or continue on to University/College.

The educational system is in the process of being reformed, with students having greater choice in continuing their education. The switching from professional (vocational) to a more general type of education at the secondary level is a common tendency –in rural regions as well. Thereby, there is no specific rural demand, which differs from the rest of the country. At the same time, professional, agricultural high schools have shifted the emphasis of their specialisation away from agricultural production towards agribusiness management.

There are lifelong learning opportunities for rural people, although the demand for "lifelong learning" is rather limited. The Agricultural Extension Service provides a large number of short courses/training for farmers. Courses offered include technologies in crop and livestock production, machinery maintenance and repair, marketing, environment protection, EU support programmes and policies, and even house keeping, crafting and cooking for rural women. There are no such statistics, but it seems fair to state that only the most active part of rural population attends different courses or trainings. There are also courses available for computing and book-keeping provided by other (private) institutions.

Mainly because of difficult financial situations and the distances to larger urban centres, the rural population has poor access to Internet communication and to foreign language learning. Although schools are fairly well-equipped with IT, the percentage of private Internet connections in rural areas is rather small. Foreign languages are taught at a basic level in schools. However, institutions for more advanced courses are located in larger towns.

The **Czech Republic** is a well-educated country, with almost three quarters of the population having achieved secondary level qualifications. The universal education system is applied in all regions and many school children commute to school in local towns (see Table 4.29). Pro-

fessional and high schools are relatively easy to access from any village, and they are even located in small towns – and public transport is usually available.

Table 4.29: Share of pupils/students who commute in Czech regions

	Pupils, Students		
	Total	**Commute**	**Daily**
Praha	193,000	5%	2%
Strední Cechy	188,887	50%	42%
Jihozápad	204,841	41%	30%
Severozápad	192,925	35%	26%
Severovýchod	263,906	41%	29%
Jihovýchod	298,917	39%	29%
Strední Morava	225,770	42%	30%
Moravskoslezko	233,520	31%	24%

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

There does not seem to be a big gap between rural and urban education, nor does a problem seem to exist in educational provision in rural areas. Nevertheless, in many regions, tertiary level education is achieved by only about 10% of the population and at even lower rates for women. In contrast, the capital region attracts educated people with just over a quarter of the men and 17% of the women having tertiary level qualifications. The female population is less well-educated for all educational categories. The agricultural workforce is well-educated with respect to other new Member States, but is less well-educated with respect to the rest of the Czech workforce (see Table 4.22). The belief of the country experts is that the educational system has improved during transition and that the rural system is catching up with the urban system in many regions, especially in the number of tertiary qualified people (see Table 4.30).

Table 4.30: Developments in educational attainment in the Czech Republic by region

		Index 2001/1993	
		Secondary	**University**
Praha	Urban	1.03	1.14
Strední Cechy	Rural	0.96	1.28
Jihozápad	Rural	1.05	1.10
Severozápad	Urban	0.98	1.11
Severovýchod	Rural	1.03	1.15
Jihovýchod	Rural	1.05	1.04
Strední Morava	Rural	1.00	1.06
Moravskoslezko	Urban	0.98	1.33

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Lifelong learning opportunities in rural areas are, in principle, similar to those in urban areas, however, travelling is necessary. In this respect, almost no agricultural extension service activities exist. In fact, there is no developed agricultural extension service. In general, rural training goes in the direction of acquiring entrepreneurial skills and re-training job seekers to be able to work in the service sector.

Slovakia is a well-educated country, with 80% of the population having at least secondary level education. In the capital Bratislava, almost a quarter of the inhabitants have tertiary level qualifications, whereas the Eastern rural region has a rate of 8.2%. The relative level of education in the agricultural population is, however, especially low. After elementary school, at the age of 15, there exists the universal possibility for children to specialise in either high school or to attend a school for professional or vocational training for between 3 and 5 years. The country experts make the point that the outcome from secondary education is highly dependent on the family income level.

The Slovakian response also provided data on the relative provision of facilities in the different types of urban and rural districts. Kindergarten and primary educational institutions are well-provided for in all types of districts, and presumably due to the small size of schools and classes are apparently more available in rural regions. This is not the case, however, for all forms of higher education, which are more available in urban areas. Higher education establishments are confined to cities (see Table 4.31).

Table 4.31: Schooling infrastructure: number of schools and classes by grade per 100,000 inhabitants by districts in Slovakia, 2000

	Kindergartens		Primary schools		Grammar schools	
	Number	Classes	Number	Classes	Number	Classes
Urban districts (9)	32.0	120	20.5	430	0.68	2990
Most-developed semi-rural districts (19)	53.7	130	37.4	530	0.33	1510
Least-developed semi-rural districts (18)	64.0	150	49.9	550	0.36	1280
Most-developed rural districts (17)	71.3	140	53.5	550	0.35	1110
Least-developed rural districts (16)	78.1	160	64.7	620	0.37	1220
Slovakia	60.5	140	45.4	540	0.39	1520

	Specialized secondary schools		Vocational secondary schools		Higher educat. institutions	Faculties
	No.	Classes	No.	Classes	No.	No.
Urban districts (9)	0.93	3,060	0.74	2,310	0.12	0.56
Most-developed semi-rural districts (19)	0.67	2,140	0.74	2,550	0.07	0.27
Least-developed semi-rural districts (18)	0.79	1,980	0.72	2,080	0.01	0.06
Most-developed rural districts (17)	0.57	1,440	0.54	1,560	0.00	0.00
Least-developed rural districts (16)	0.61	1,210	0.68	1,540	0.00	0.00
Slovakia	0.70	1,930	0.68	2,060	0.04	0.17

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries (WB 2002).

Beyond school, there is very little available opportunity for further training and few lifelong learning opportunities. To this point, the agricultural extension service does not play an important role. In the whole country there are very few institutions which provide this form of education for adult people, e.g., the Agroinstitut in Nitra, which is, however, mainly focussed on education in primarily production. In general, a discrepancy was noted between the formal content of education provided for rural people on one side, and market needs on another. Too few courses are offered which are linked to the changed market demand, especially services and marketing activities. Too many formal education courses are still focussed on the purely production side of economic activities. In fact, many of them become increasingly obsolete given the speed with which new technologies are introduced, e.g., farming, food and wood processing, environmental protection, etc.

Easier access to a global information network, telecommunications, a more intensive exchange of educational personnel between schools (both teachers and students), a wider access to programmes stimulating transfer of knowledge are definitely to be seen as opportunities of the EU accession. On the other hand, there is a threat that the most isolated and remote areas will not be able to improve, and their relative remoteness will even increase.

No special rural educational institutions or conditions can be reported in **Hungary**, according to the country experts; the same institutions function all over the country. Also, the number of students per 1,000 inhabitants seems not to differ much between regions, and is even not highest in the capital region (see Table 4.32).

Table 4.32: Educational level in Hungary, 2000

	Students per 1,000 inhabitants with secondary education (high school/professional school)	Students per 1,000 inhabitants with tertiary education (University and College)
Nation	20	1.4
Central Hungary	18	0.3
Central Transdanubia	12	0.0
Western Transdanubia	14	0.9
Southern Transdanubia	20	0.3
Northern Hungary	21	2.4
Northern Great Plain	25	1.5
Southern Great Plain	23	2.4

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Vocational training for rural people are organised by the agricultural extension service, the chamber of agriculture or farmer organisations, which used to be followed with great interest. These courses can last for several weeks, and mainly run during the winter. Universities also organise part-time courses for graduates. The typical form is a master-type course with 4 semesters. The current courses meet the demand of rural people, especially for agricultural skills. The greatest demand recently regards changes caused by EU membership. With EU integration, skills on the *acquis* should be increased, especially in rural areas. People are very much interested in what will be the main changes in their work, requirements, rules, conditions and environment.

The educational level of the urban population in **Slovenia** is higher than the level in rural areas. However, rural education improved most recently in the young generation, of which many are potential emigrants to urban areas. In general, there are no differences between rural and urban children in their possible choices for the formal education process. In some villages, the absence of kindergartens is problematic. The reasons in the past for this were the lack of facilities, and are most recently the insufficient number of children, which increases maintenance costs. Greater differences are observable between rural and urban areas in providing up-to-date education such us computer and language courses; this can be explained through differences in demand for these services and a more developed supply of them in urban than in rural areas. Also, spill-over effects of education arising from social capital are usually lower in rural areas. Opportunities will be in providing new high-tech technologies, the Internet, and developed library systems that can easily connect remote areas with the rest of the world.

One of the key problems of rural education is that children *on farms* are still less engaged in informal education activities and sometimes, but less and less, working on the farms. Farmers' education is insufficient and differs considerably from the level of the average labor force. According to SURS (2002), 38% of the holders of family farms have vocational or upper secondary education, and 59% have only elementary education or are entirely without formal education. Deriving from the criterion of formal *agricultural* education achieved, the situation of the professional qualification of holders is even less favorable. Only 15% of them have finished at least one of the programs of agricultural education. Economical and social security for small farmers can be achieved by employment outside the agricultural sector or by implementing supplementary activities. In the last few years, some self-employment projects in rural areas have been going on in Slovenia to support the development of supplementary activities and of services on farms. It is likely that service activities in rural areas will grow. Also, the agricultural extension service provides different types of courses catering to rural people's interests.

The formal educational qualifications of the rural population in **Romania** is – similar to the other new Member States – lower than the national one. The share of *low* educational level in the active rural population is 1.8 times higher than the respective share in total population. In

contrast, the share of *high* educational levels in the active rural population reaches only 20% of the standard of the total population (see Table 4.22). High schools and post- high school institutions are very few in the rural areas. The greatest portion of the school units in communes are in precarious material condition and they lack, or are poor in, didactic material endowments. This adds to the difficulty of young rural people progressing on to higher education, and as shown by the statistics, only between 1 to 3% of the rural population have a tertiary level education. Most will leave school after the secondary level and will thus only be able to find manual labour. Furthermore, Table 4.33 shows that the rural educational situation has not improved in recent years, and that the formal education of the young generation aged 15-24 in rural areas has even deteriorated in comparison to their parents. Young people can therefore be considered as one of the loser groups of the transformation process. A large proportion of them do not own land, as it was restituted to their parents and grandparents. Additionally, the number of jobs in urban and rural area is decreasing, so about 66% of those aged 15-24 are obliged to work as unpaid family labour. Some of the young people try to find jobs abroad.

Table 4.33: Rural education level by age groups in Romania, 2001

	15–24	25–34	35–49	50–64	65 and over
Rural total	100%	100%	100%	100%	100%
Higher education	0.7%	2.5%	3.0%	2.4%	0.3%
Post high school and foremen education	1.1%	1.6%	2.0%	2.1%	0.4%
High school (XI-XIII classes)	19.8%	43.3%	25.8%	4.9%	1.2%
Vocational and apprenticeship education	24.4%	29.7%	31.2%	12.6%	2.3%
VIII–X classes high school	45.4%	20.0%	31.8%	42.6%	28.6%
Primary or less education	8.5%	2.9%	6.2%	35.4%	67.2%

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries (AMIGO Survey 2001).

Agricultural education and graduates at all levels hold a very low share in the Romanian educational system. Too few people hold specific agricultural qualifications given the reliance of the Romanian economy on agriculture. The National Agency for Agricultural Consulting (A.N.C.A.) gives assistance in the reform process in agriculture by extension activities and technical assistance and organises courses for professional skills and the varying activities of rural inhabitants. In future, the vocational training degree, as well as continuous adult training in the field of agriculture, mountain and food industries shall be increased by authorising a number of educational institutions as suppliers of this kind of services.

In **Bulgaria**, the population of the five predominantly rural regions has a much lower level of formal educational achievement than the population in the capital region Yugozapaden (see Table 4.34). Between 38-44% of the rural population have only primary educational qualifications compared with 29% in the capital region. Secondary educational levels are more similar in all types of region.

Table 4.34: Educational achievements in Bulgaria, 2001

	% of the population with primary education	% of the population aged 15 and over with secondary education (high school/professional school)	% of the population aged 25 and over with tertiary education (University and College)
Bulgaria	**38**	**43**	**19**
Severozapaden	44	45	14
Severen Tsentralen	38	44	17
Severoiztochen	42	39	17
Yugozapaden (capital)	**29**	**47**	**28**
Yuzhen Tsentralen	41	41	16
Yugoiztochen	41	40	16

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

The largest differences are in tertiary levels of education, with rural regions having around 14-19%, as opposed to the capital region with 28%.

These lower rates of educational provision also apply to the agricultural workforce. The share of *low* educational level in the active agricultural population is 1.5 times higher than the respective share in total population. In contrast, the share of *high* educational levels in the active agricultural population reaches only 24% of the standard of the total population (see Table 4.22).

In general, educational levels can be considered to be improved during recent years. The net enrollment coefficient NEC (i.e., the ratio between the number of students and the total population in a certain age group) increased in younger generations: The participation in the educational system of children aged 5-14 was, in 1999, with 93.8%, higher than that of the 15-19 age group, with 62.6%. However, the decrease in the absolute number of the younger generations will have a significant effect on the structure of the educational system. Due to the diminishing number of pupils in future years, there will probably be further changes in the school network, the number of teachers, etc., especially in primary education.

The public employment agencies at local level organize and conduct different courses for the officially-registered unemployed. Initiatives include vocational training, additional training, retraining, initial training, and motivational training. There exist regional employment initiatives, one of which is the Programme for education, qualification, and employment, directed towards people from minority and ethnic groups. A significant part of lifelong learning is on-the-job training, practiced by some, primarily large foreign companies. This is one of the major factors helping the workforce adapt to the challenges of the developing market economy.

4.3.3 Summary of key points

The level of educational attainment amongst the rural population is, in all new Member States, lower than the standard of the respective total populations, whereas rural-urban differences seem to be less pronounced in the Czech Republic, Hungary, Poland and Latvia. On the whole, men have slightly more formal education than women, although there are some exceptions, such as Estonia. Differentiated data, which have been provided by some countries, show that the share of *low* (primary) educational level in the active rural population is between 1.4 (Latvia and Poland) and 1.8 times (Romania) higher than the respective share in total population. In contrast, the share of *high* (tertiary) educational levels in the active rural population reaches only some 20% (Romania) to 62% (Latvia) of the standard of the total population. Thus, the main discrepancy can be observed in the much lower participation rates of the rural population in tertiary education. For example, in Slovakia, the tertiary participation level ranges from 24.6% in Bratislava to 8.2% in the Eastern region. This means that rural children do not progress in the educational system as far as their urban counterparts even though the same opportunities for progression are open to them. While the net of primary institutions is normally well-developed all over the countries, most higher education institutions are concentrated in towns, so that progression will incur the costs of commuting or relocation, depending on the distances and availability of public transport. In the Czech Republic, commuting to school is already a common practice. Concentration tendencies of education facilities are also observable at the primary level in Estonia, and are expected in Bulgaria.

The quality of rural education is reported to be, in general, lower than in towns due to difficulties attracting the best teachers, worse school equipment, less access to information technology, few special schools and finally, financing problems. Lifelong learning opportunities – especially courses for new developments such as IT and language training – are less available in rural areas compared with towns, although detailed data about training and adult educational provisions is scanty. Moreover, Poland reported a considerably smaller percentage of private internet connections in rural areas. Curricula adjustments are taking place away from

outdated technical subjects towards more business-orientated courses (e.g., in Poland and Lithuania), but Slovakia still faces an overbearance of production and a lack of of marketing and services.

In agriculture, extension services and agricultural universities, colleges and research institutes provide several training courses, but not always to a large extent as reported for Latvia (financial constraints), Poland (only the most active part of rural population participates), the Czech Republic (no extension service) or Slovakia (very few institutions). The level of education amongst the agricultural population, even at a vocational level, is often especially low. In comparison to the total population, the *low* educational level of the active agricultural population is between 1.4 times (Poland) and 4.1 times (Slovakia) higher, whereas the *high* educational level reaches only 14% (Slovenia) to 52% (females in Estonia) of the national standard. The situation of *formal agricultural* education is often even less favourable. For example, in Slovenia, only 15% of the the holders of family farms have finished at least one of the programs of agricultural education. A similar situation is reported in Romania. There, land restitution has additionally exacerbated the situation of young people in rural areas. Their parents and grandparents have been granted land and many young people leave school to become unpaid farm family workers.

While Romania is experiencing a deteriorating educational situation in rural areas, with the older generation being better formally-educated than their children, the Czech Republic, Slovenia and Bulgaria reported on improvements in rural areas. In Estonia, the total educational level seems to be in decline, whereas the rural-urban relation has stayed constant.

The overriding conclusion is that the rural educational situation is still worse than the urban one, but shows, in several cases, hopeful tendencies. Ensuring a sufficient educational level for the rural population in future should focus on the improvement of quality, and to render it possible that each rural child (as well as adult) can reach the desired educational institution within an acceptable distance. The latter incorporates the facilitation of commuting and the provision of public transport. Finally, the opportunities of the Internet for remote areas should be extended to overcome rural-urban differences, especially given the importance of educational attainment for rural people to find and sustain employment.

4.4 The structure of employment

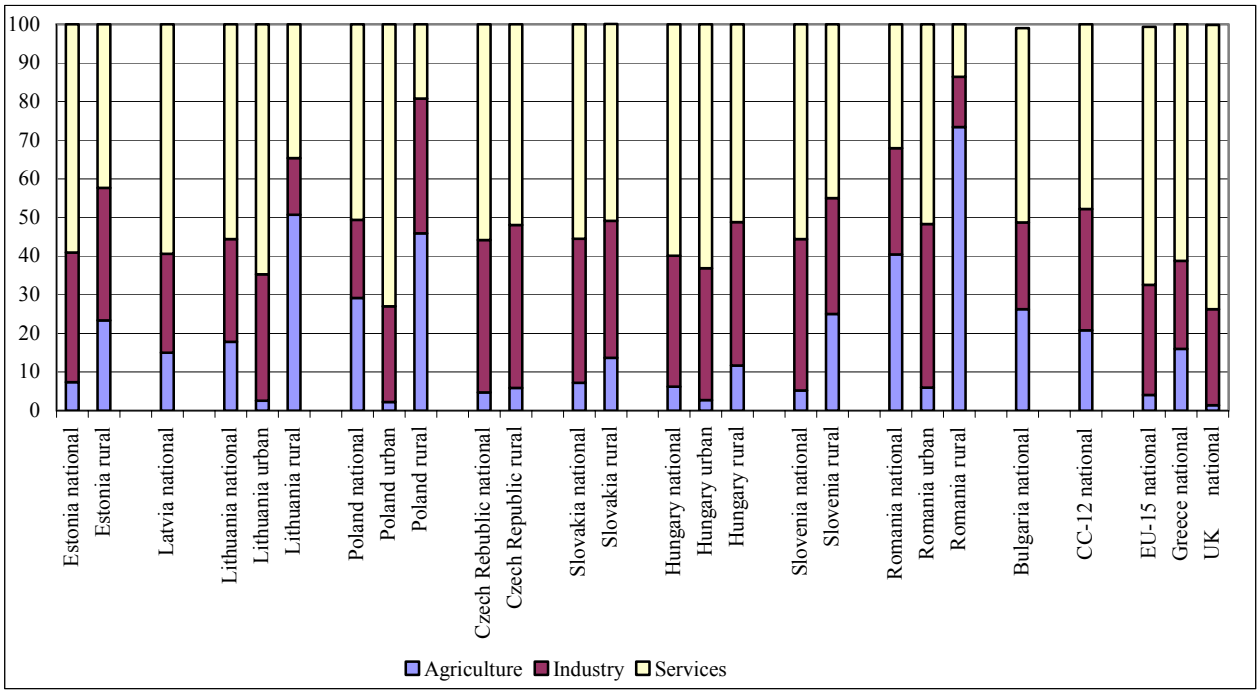
4.4.1 Overview

Since agriculture employs a large portion of the rural population in many countries, changes in its work force will have a large effect on total employment. Furthermore, because agriculture is likely to shed labour in the process of economic growth, the ability of rural areas to maintain overall employment levels will be affected by the "initial conditions" represented by the relative shares of employment in the three main sectors.

Figure 4.2 presents the breakdown of total employment in the agriculture, industry and services sectors. Eight countries provided figures not only for the national average, but also for rural areas, and another four added urban areas. As expected, agricultural employment in rural areas is higher than in the national average. Furthermore, the importance of services – which are the dominant sector in all countries except Romania – is lower than in the national average. In the Czech Republic, there are only small observable differences between national and rural employment. For example, the Czech national average (5%) of the share of agricultural employment in total employment is only slightly lower than the corresponding figure for rural areas. Rural areas in the Czech Republic, Hungary, Slovakia, Poland and Estonia are relatively highly industrialized. Industrial employment accounts for 52% in the initially-mentioned country and ranges between 37% and 34% in the other four countries. In the former three countries, the agricultural sector is less important, employing up to 7% in the na-

tional average and less than 14% in rural areas. In contrast, agriculture is far more important and is sometimes even the main employment sector in Bulgaria (national average: 26%) and the rural areas of Romania (74%), Lithuania (51%), Poland (35%), Slovenia (25%) and Estonia (23%).

Figure 4.2: National, urban and rural share of employment in agriculture, industry and services in total employment (%), 2001 (CZ, EST and SK rural: 2000; PL rural and urban: 1999)



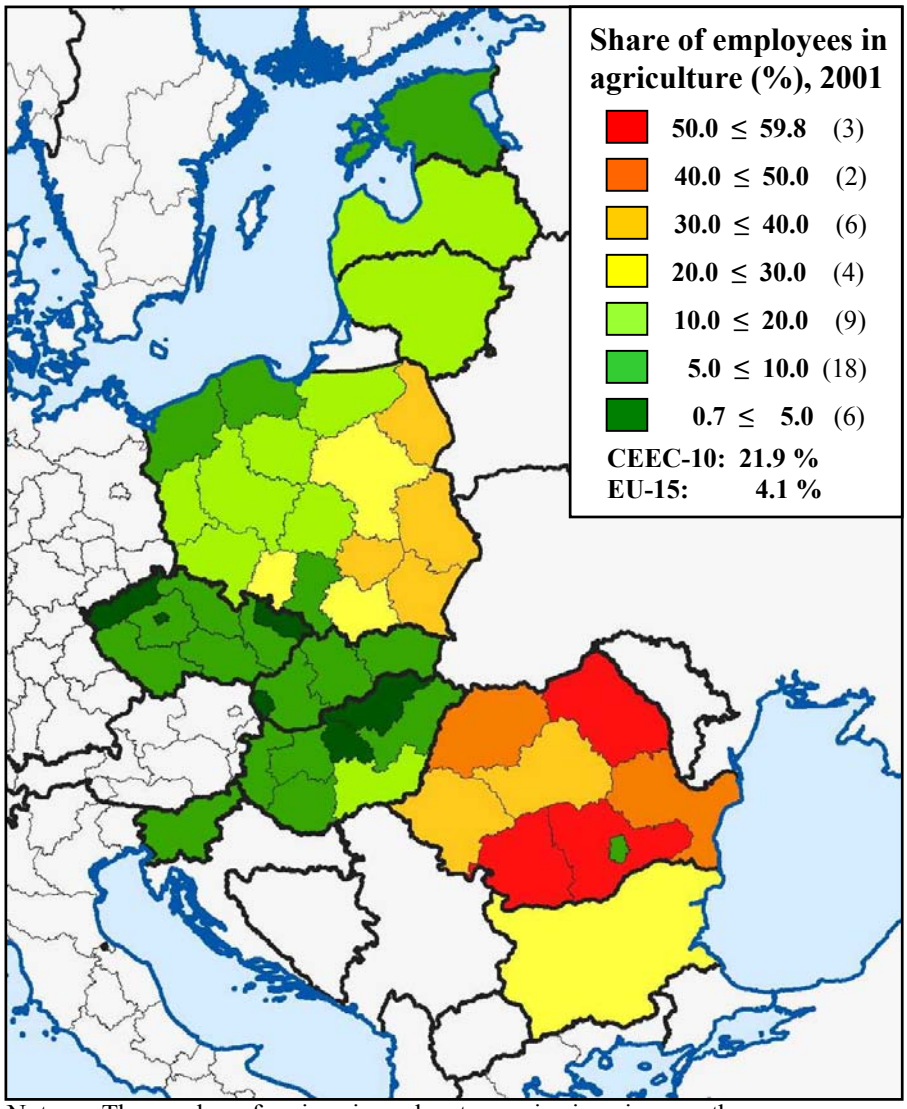
Note: CC-12 includes CEEC-10 and Malta and Cyprus. Greece is the EU-15 Member State with the highest, UK with the lowest share of agricultural employment.

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries; COMMISSION OF THE EUROPEAN COMMUNITIES (2003).

In CEE, agriculture is more important in terms of employment opportunities (and its contribution to the gross value added, see section 4.5) than in the EU-15. However, there are huge differences across the new Member States (see above) and the regions. In most regions, the share of agricultural employees in total employment is significantly higher than the share of agriculture in gross value added, which indicates low labour productivity relative to the other sectors in the country. This pattern is also observed in the EU, but at a lower absolute level.

On the NUTS-2 level, the share of employees in agriculture varies between 0.7% and 59%, (2001; see Map 4.5). The importance of agriculture in terms of employment is highest in Romania, where agriculture is characterised by subsistence-oriented small-scale farming. With the exception of Bucharest, Central Romania is the region in this country with the lowest share of agricultural employment; nevertheless, one of three persons is engaged in agriculture there. Other regions with a high share of agricultural employees are Bulgaria and the Eastern part of Poland (>20%). Low shares are observable in the Czech Republic, Slovakia, Estonia, Northwestern Poland and Hungary (<10%). With the exception of Estonia, agriculture in these regions is dominated by large farms. For example, in 2000, around three quarters of the agricultural land in Slovakia was used by co-operatives and other legal persons with an average size of 1,537 ha and 1,125 ha, respectively. In the Czech Republic, the average farm sizes of these two types of enterprises was somewhat lower, but still rather large (1,428 ha and 781 ha, respectively, in 2001). Their combined share in total land use is similar to Slovakia.

Map 4.5: Share of agricultural employment in total employment, 2001 (%)

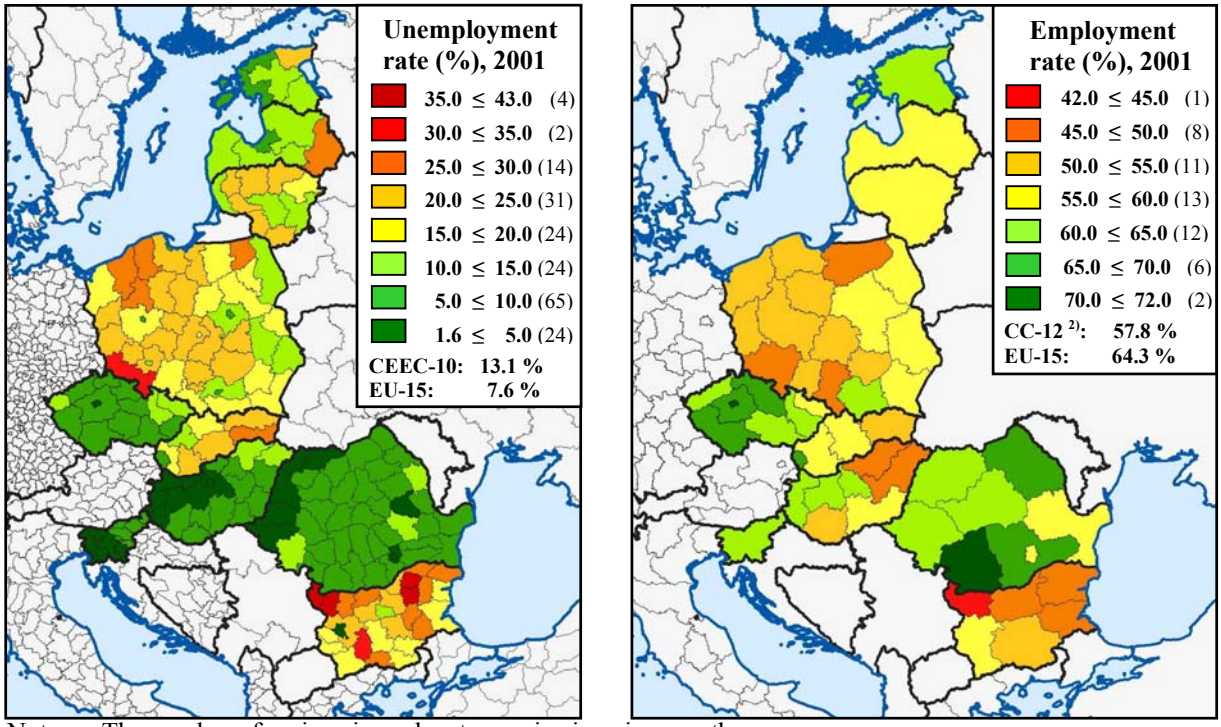


Note: The number of regions in each category is given in parentheses.
Source: Author´s computations based on EUROSTAT's Newcronos Regio data and on NATIONAL STATISTICAL INSTITUTE, REPUBLIC OF BULGARIA (2001).

In some of the new Member States, agriculture plays an important role as a social buffer stock for labour. This is manifested particularly by the existence of many small-scale, subsistence-oriented farms. In 2001, the official (registered) unemployment rates in the new Member States ranged between 1.6% and 43% on the NUTS-3 level. Regions with an unemployment rate of less than 10% are the capitals and large cities, as well as the Czech Republic, Slovenia, Hungary, Romania and the coastal regions of Estonia. In contrast, unemployment rates are above 20% in Bulgaria, Poland, Slovakia, East Latvia and parts of Lithuania (see Map 4.6). It can be questioned to what extent these differences are influenced by different degrees of hidden unemployment and its correct statistical measurement. For example, in Romania, the low unemployment can be explained by hidden unemployment in subsistence-oriented agriculture. Although in Bulgaria, too, agriculture serves (to a less extent) as a buffer stock, in 2001, the average unemployment rate was three times as high as in Romania. Employment rates (employed persons aged 15 to 64 as a share of the total population of the same age group) are in general associated with the unemployment rates. The rate of employment ranged between 42% and 72% in CEE, with its average level lower than in the EU-15 (NUTS-2, see Map 4.6). It was lowest in regions with high unemployment as in Bulgaria and parts of Poland. Only Northeastern Hungary connects a low employment rate with low unemployment as well. A low employment rate indicates the size of the potential reservoir of work force which could

enter the future labour market presenting a challenge for job provision but also a chance for economic growth. Highest employment rates can be found in the Czech Republic, Romania, Bratislava, Estonia, Northwestern Hungary and Slovenia.

Map 4.6: Unemployment and employment rate [1], 2001 (%)



Notes: The number of regions in each category is given in parentheses.
[1] Employment rate: Employed persons aged 15-64 as a share of the total population of the same age group. [2] CC-12 = CEEC-10 + Malta and Cyprus.
Source: EUROSTAT's Newcronos Regio data; COMMISSION OF THE EUROPEAN COMMUNITIES (2003).

4.4.2 Country profiles

In **Estonia**, specific data on rural employment is reported. There is a high rate of national employment of 69.4% for men and 57.6% for women. However, the rate in rural areas is lower than in urban regions (see Table 4.35). Rates of employment for both older workers (aged 55-64) and younger workers (aged less than 25) are also significantly higher for the urban population. Unemployment rates are therefore higher among the rural population, at almost 15% for both men and women compared with just over 10% for the urban population. In addition, the degree of underemployment in the agricultural sector is assessed by the country experts as high.

Table 4.35: Employment and unemployment rates (%) in Estonian regions, 2001

	Employment rate [1]		Unemployment rate		Employment rate for persons between 55 and 64	Employment rate for persons less than 25
	males	females	males	females		
Põhja-Eesti	74.6	63.2	11.1	10.5	56.4	44.6
Lääne-Eesti	67.3	58.1	10.7	10.1	50.9	40.7
Kesk-Eesti	67.9	54.5	18.6	17.1	48.6	38.4
Kirde-Eesti	68.6	55.7	10.7	n.a.	49.3	41.0
Lõuna-Eesti	64.2	56.0	13.5	12.7	50.4	40.3
National	69.4	57.6	13.2	12.3	50.5	41.1
Rural	63.2	59.4	15.1	14.3	46.7	35.6

Note: [1] Employed persons aged 15-64 as a percentage of the population of the same age group.
Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Substantial and rapid changes took place in the rural employment structure during the period when Estonia was regaining its independence: employment decreased 2.4-fold in primary production, increased 1.7-fold in the services sector and 1.4-fold in the processing sector. The most rapid changes in the primary employment sector took place in agriculture and fisheries. In 2000, only 7% of the labour force was employed in agriculture (including hunting, forestry and fisheries, see Table 4.36). The most noteworthy difference in the structure of employment between rural and urban population is the greater degree of service employment in centres of population. Only 42.3% of the rural labour force works in the service sector compared with 59.1% in the national workforce (see Figure 4.2).

Table 4.36: Relative share of working age people employed in primary production in total working age population (%) in Estonia, 1990-2000

Area of activity	1990	1992	1994	1996	1998	2000
Agriculture, hunting	16.6	15.0	10.9	8.1	6.9	5.0
Forestry	1.4	1.3	1.7	1.2	1.5	1.6
Fisheries	3.1	2.8	1.9	0.8	1.1	0.4
Total	**21.1**	**19.1**	**14.5**	**10.1**	**9.5**	**7.0**

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries (Compilations "Labour force" 1995-99; "Estonian Statistics" No. 7 / 103, 2000).

In 2000, the agriculture sector employed 32,400 people, (Estonian Statistics No.7 /103/ 2000) which is 18% of the total number of employed people in rural areas. In 1990, the number of employees in agriculture and hunting was 136,800, which accounted for 56% of the total number of employed people in rural areas. The reasons for the decrease of employment in agriculture are the decreased output of the sector, redundancies and the transfer of functions not characteristic of agriculture to new companies and rural municipalities. Former collective farms provided various services to their staff (energy supply, catering, kindergartens, community cultural centres, etc), and approximately 1/4 of their employees were engaged in providing these services.

Data for 2001 in **Latvia** on employment levels shows relatively low employment rates in both urban and rural areas (see Table 4.37). Unemployment is the most serious concern in Latvia, with the national rate for men at 14.1% and for women 11.5%. The distribution of unemployment is highly skewed, with the rate in Riga at 7.5%, or half the national average, whereas in most of the regions it is twice the level in the capital, and in the peripheral region Latgale it is four times as high. In the countryside, several forms of hidden unemployment exist. For example, the proportion of family members involved in unpaid work is 14% in the countryside, and in agriculture, which has nationally an important share in employment of 15.1%, the underemployment has an estimated degree of 5.6%. Unemployment has grown especially among young people who have no professional education or even elementary education. They lack established work experience to be able to compete in the labour market and they do not have enough knowledge and capital for starting up their own ventures. Another important problem is the increase in unemployment amongst the rural population of prepension age (starting from the age of 50).

Table 4.37: Employment structure in urban and rural areas in Latvia (%), 2001

	Employment rate		Unemployment rate	
	Male	Female	Male	Female
Rural population	56.8	43.2	11.5	9.1
Urban population	55.1	44.3	15.4	12.4

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Lithuania has a national male employment rate of 61.8% and 58.5% for women. There are very high unemployment rates nationally, for men at 17.9% and for women, 13.1%. Unemployment levels vary between regions, with the highest rate in the mixed urban rural region of

Siauliai. Unemployment is more common in the rural situation and again the situation is getting worse (see Table 4.38).

Table 4.38: Unemployment rates in rural and urban areas (%) in Lithuania, 1998-2001

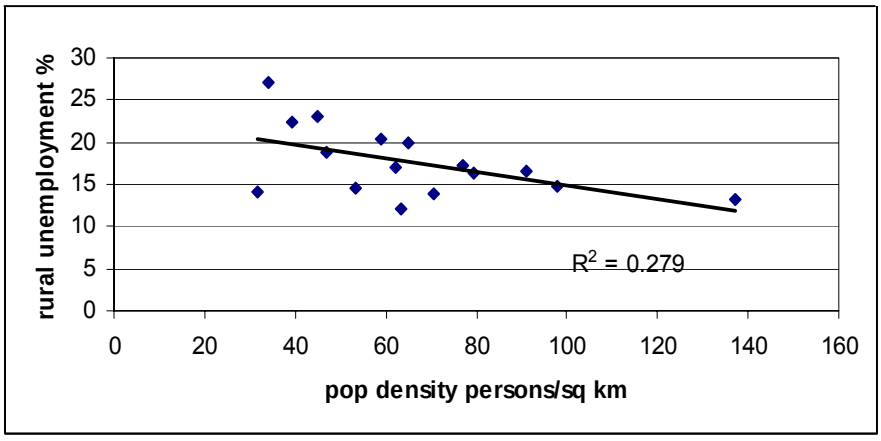
	1998	1999	2000	2001
Rural	14.4	16.5	16.7	18.0
Urban	11.1	9.0	12.6	14.4

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

The contrast between urban and rural employment patterns firstly shows the heavy reliance of rural areas on agriculture, where the proportion has been declining slowly from 55.2% in 1998 to 50.7% in 2001; secondly, it shows the dominance of services in urban areas, which has been growing slowly from 62.3% in 1998 to 64.7% in 2001. There is apparently a faster rate of service job growth in rural areas, but the proportion, at 34.6% in 2001, is still a relatively small part of the rural labour force. It is likely that the heavy reliance on agriculture is associated with hidden unemployment, which will mask the extent to which rural people are unable to fully utilise their earnings potential. The ongoing land and property restitution process contributes to this situation.

Poland's employment rate, nationally for men of 61.2% and for women of 49.3%, compares reasonably well with other new Member States. However, registered unemployment rates are high, with the national rate for men being 14.6% and for women 18.3%. There is also a considerable degree of underemployment in the agricultural sector, with estimates for the 16 voivoidships (NUTS-2 regions) ranging from 16% to 40%.[7] There would appear to be an association between registered unemployment levels and population density as shown in Figure 4.3. The more rural a region is, the more likely are people to be unemployed. The highest rates of 21% for men and 25% for women are to found in the Northwest and Southwest of the country, but rates are generally high in most regions.

Figure 4.3: Unemployment and rurality in Poland



Source: Authors´ computations based on EUROSTAT's NewCronos Regio data.

The pattern of employment also varies considerably between regions, with the most obvious difference between the urban and rural population being the emphasis on services in the urban environment and on agriculture in the rural (see Figure 4.2). According to EUROSTAT's Newcronos Regio data, in all voivoidships (including rural and urban areas) the service sector is the largest employer. On this level, the industrial sector is also, in most cases, more important for workers than agriculture. Regions with a share of above 30% of agricultural employment are located in Eastern Poland.

[7] Underemployment is estimated as the difference between the average daily working hours in agriculture and a standard of 9 hours.

The **Czech Republic** does not have the same degree of urban and rural differentiation as do many other new Member States. In comparison with the other countries, the Czech Republic has a much higher level of aggregate employment, with 73.1% of working age men for the nation as a whole in work and 56.8% of women. In the capital region, the male employment rate is even higher, at 77.3%, and the female employment rate at 65.9%. The lowest regional rate for males is 65.5% and 51.3% for females (Moravskoslezko in the Northeast). The employment rates for older workers (55-64) are, with 59.8% in the capital region, commensurately higher than the national average of 36.9%, but at much lower rates, around 25-37%, in other more rural regions. Younger workers (15-24) have an employment rate of 34.4% nationally, with the highest rate in Jihozápad in the Southwest (41.7%). One of the largest differences between the regions is the unemployment rate, which in 2001 was 8.0% nationally, but was recorded as high as 13.6% in the Moravskoslezko region and only 3.0% in Prague.

The agricultural labour force as a proportion of the total has been falling continuously and is now 4.8% nationally, rising to 7.5% in the Jihozápad region. The capital has more than three quarters of its workforce in the service sector. In all other regions, manufacturing employs around 40% of the workforce and around 50% are in services with little regional variation. The service sector is expected to continue to grow.

For **Slovakia**, the country experts regard the national employment and unemployment rates as overstated and estimate the employment rate to be 54% for males and 46% for females (EUROSTAT´s Regio data: 61.6 and 51.1%, respectively) and the unemployment rate to be 10.3% for men and 8.3% for women in 2001 (EUROSTAT´s Regio data: 20.1% and 18.5%, respectively). Unemployment is mainly a rural phenomenon, with very low rates in Bratislava and the highest rates in the east of the country. Only 50% of the active male population in rural areas are estimated to work, approximately 60% in urban areas. The respective figures for females are 30% and 54%. Very few young people aged less than 25 are employed (11.7% in 2001). The rural unemployment rates for men are quoted at 14% and for women 18%. The respective urban figures are 3% and 6%.

According to the experts, there has been a significant change in the structure of rural employment in recent years. Available data (from selected districts) confirms a huge drop of employment in agricultural production, construction and industry. Less dramatic drops have been seen in health and social care, and in the education and cultural sectors. In some rural districts, the registered number of people employed has halved compared to 10 years ago. There is also a substantial number of people working in the shadow economy (not shown in statistics). The official rate of unemployment in certain rural areas increased dramatically, to over 37% in some rural districts and 62% in some villages. Many officially unemployed persons work without notifying the employment office. In many regions, a high long-term unemployment rate has become a standard phenomenon.

Trends in sectoral employment patterns in different types of regions are shown in Table 4.39. The table typifies the usual case of a marked decline in employment in both agriculture and manufacturing enterprises and the strong growth in the service sector, especially in urban regions. There has been growth in the rural service sector, but not at a sufficiently rapid rate to absorb displaced labour from other sectors. An analysis of employment data by type of district for the year 2000 adds detail to the above findings (see Table 4.40). Unemployment and poverty go together, as shown by Figure 4.4 from Slovakian districts.

Table 4.39: Employment structure in urban and rural areas in Slovakia, 1980-1997

Sector	Urban regions				Transitional regions				Rural regions			
	1980	1991	1995	1997	1980	1991	1995	1997	1980	1991	1995	1997
Agriculture and forestry	2.0	3.0	0.7	0.4	13.0	12.0	8.4	6.1	14.0	19.0	15.4	13.2
Industry	26.0	22.0	20.1	19.2	40.0	37.0	34.7	33.2	46.0	33.0	30.7	28.2
Construction	13.0	9.0	6.7	6.5	11.0	10.0	7.1	6.9	10.0	9.0	5.8	5.1
Services	59.0	66.0	72.5	73.9	35.0	41.0	49.8	53.8	29.0	40.0	48.1	53.5

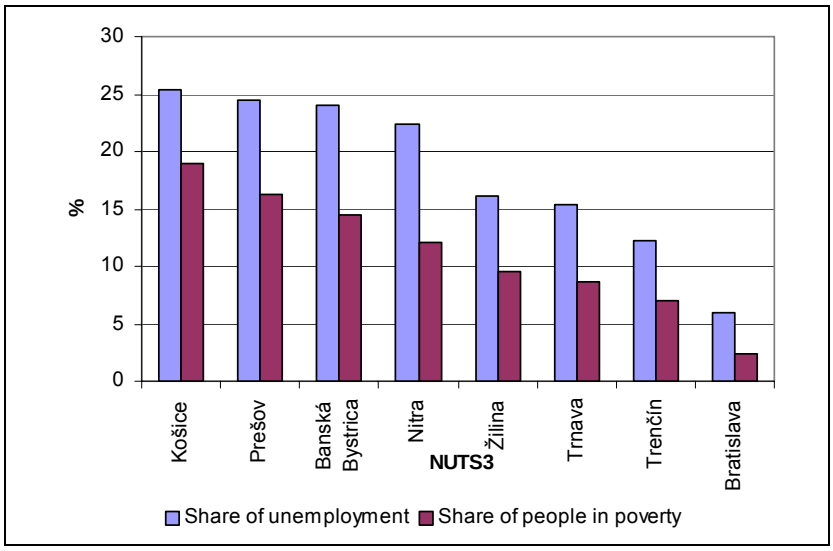
Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries (Statistical Office of the Slovak Republic).

Table 4.40: Average number of employees in total and by sector, by type of district in Slovakia, 2000

Type of district	Number of registered employees	% in agriculture	% in industry	% in construction	% in services
Urban districts (9)	277,818	0.4	22.8	5.2	71.3
Most-developed semi-rural districts (19)	436,158	6.3	39.7	4.0	50.0
Least-developed semi-rural districts (18)	240,295	9.3	38.3	3.3	49.1
Most-developed rural districts (17)	226,318	11.7	35.4	4.1	48.8
Least-developed rural districts (16)	140,491	15.6	28.0	3.3	53.1
Slovakia	**1,326,570**	**7.2**	**33.0**	**4.3**	**55.5**

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries (WB 2002).

Figure 4.4: Relationship between unemployment (I-2002) and poverty by region in Slovakia



Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries based on BARTOVA (2002).

The national employment rate in **Hungary** is relatively high for men at 62.7%, but is at a much lower level, 49.4%, for women. In 2000, 23.7% of older male workers were employed and 31.4% of younger workers in 2001. Unemployment rates for men and women were 6.3% and 4.9%, respectively, in 2001. Employment rates in Central Hungary, Central Transdanubia and Western Transdanubia exceeded these levels and had lower unemployment rates. Employment rates were lower in the more rural and agricultural regions of Southern Transdanubia and the Northern and Southern Great Plains, where unemployment rates amongst men reach 12.9% and for women 9.2%. In addition, underemployment also exists in agriculture in these regions. Northern Hungary also has employment problems, although it does not have high rates of agricultural employment.

The differences in employment patterns between the urban and rural labour force shown in Figure 4.2 indicate a greater reliance of rural workers on the declining sectors of agriculture and industrial as sources of employment. Industry provides almost four times as many jobs as agriculture in rural Hungary. The rural service sector is even larger and has grown since 1990, but the most dramatic development has been the growth of urban service employment.

In the absence of any data on rural and urban employment patterns by region, it is not possible to discern in any clear way specific regional patterns of employment. Since 1997, there has been some growth in industrial employment in all the regions except Central Hungary where services, the largest employer in all regions, is heavily concentrated. The other consistent change in all regions has been the decline in agricultural employment, but the proportion of the workforce involved is much smaller than in the other sectors. There could well be a concentration of rural service jobs in Central Hungary.

In **Slovenia,** no regional data are reported except for unemployment rates. Unemployment rates are low, at 5.4% for men and 6.0% for women nationally, and no district has a rate for either sex above 9.0%. National employment rates are comparatively high, especially for females at 58.5 and for men at 66.7%. The patterns of employment at the national level are within the middle of the ranges found in other countries and regions with agriculture, providing 9.8% of employment, industry 38.2% and services 50.8%. Employment has fallen modestly for both agriculture and industry in recent years and has risen commensurately in the service sector.

Romania has a high level of employment, especially for women. The Northeast region, which is one of the poorest in all the new Member States, nevertheless has a male employment rate of 70.5% and 63.8% for women. Unemployment rates are also low in most regions, within the range 6.4% to 7.5%. Agricultural employment is very high, having increased, in the last few years, in proportion to a rate of 44.4% of total employment and 73.4% of rural employment (see Table 4.41).

Table 4.41: Employment structure in urban and rural areas in Romania (%), 1996 and 2001

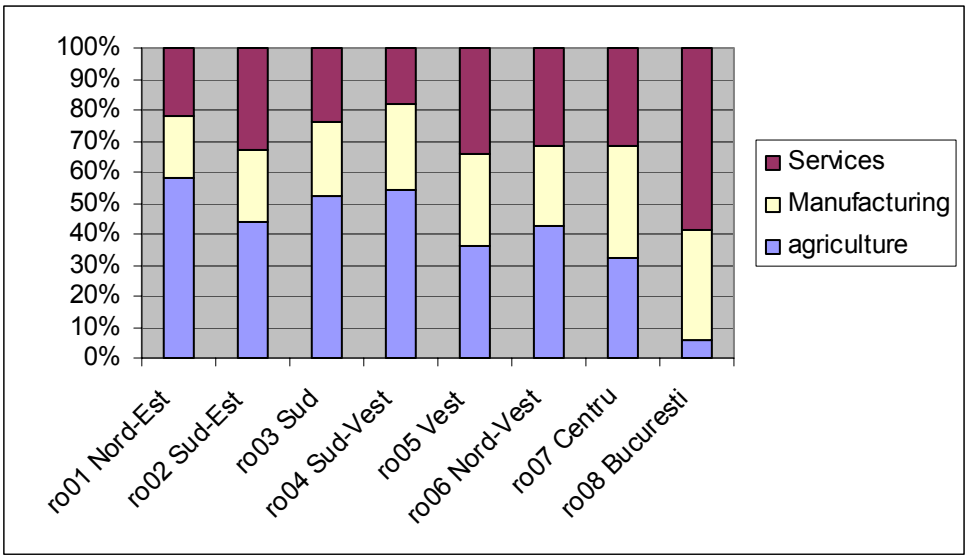
	Agricultural employment		Manufacturing employment		Services employment	
	1996	2001	1996	2001	1996	2001
Urban	6.4	6.0	35.3	31.2	46.9	51.7
Rural	67.4	73.4	11.0	8.1	14.6	13.6

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

The manufacturing and service sectors employ far fewer people than agriculture in most regions apart from Bucharest and the central region (see Figure 4.5). In contrast to many regions in the new Member States, and the capital city, the service sector is a small part of the regional labour force, for example, being around 20% of the total workforce in the North-eastern and South-western regions.

The very large peasant agricultural sector is thus a means of survival in an economy with few formal employment opportunities. It may be that the informal nature of subsistence agriculture hides its multifunctional role in that many rural services, as well as food production, are either provided by the farm family itself or informally in the rural economy. The rural economy would seem, in comparison with other countries, to be highly undeveloped unless services and manufacturing are conducted informally or within multifunctional farming families. The Romanian rural situation is apparently unique according to the increasing degree to which its people are reliant on subsistence farming. Moreover, as shown in Table 4.42, a high proportion (about 73%) of the rural workforce are either self-employed or unpaid family members.

Figure 4.5: Patterns of regional employment in Romania (%), 2000



Source: EUROSTAT's Newcronos Regio data.

Table 4.42: Employment structure by professional status by areas in Romania, 2001

	National	Urban	Rural
Total employment, 000's	10,697	5,019	5,678
	%	**%**	**%**
Employee	55.8	89.5	25.9
Employer	1.2	2.1	0.5
Self-employed	23.6	6.2	39.1
Unpaid family worker	19.1	2.2	34.0
Member of an agr. Holding or of a co-operative	0.3	0.0	0.5

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries (Survey AMIGO, 2001).

The most urban region in **Bulgaria** has the highest employment rates for both men and women, at a rate of 61.9% for men and 54.3% for women. These rates are higher than the national average of 56.1 (men) and 47.2, (women) which by EU standards are low (EU-15: 73.5% men and 55.1% women in 2001). Employment rates for both older and younger people are also higher in the most urban region. More rural regions have lower employment rates, with the lowest rates of 43.0% (men) and 40.1% (women) in Severozapaden in Northeastern Bulgaria.

The national unemployment rate of about 20% is nearly twice the level of 9.7% in the most urban region. Unemployment rates are slightly higher than the high national average in most of the rural regions. Again in the region of Severozapaden, the unemployment rate is quoted at 36.7% for men and 28.5% for women.

All the rural regions have at least 30% or more of their employment in the industrial sector. The service sector provides the greatest amount of employment in the most urban region, at a rate of 65.5% compared with the lowest figure for a rural region of 53.4% in Severen Tsentralen in Northern Bulgaria and a national average of 58.9%. The size of the service sector is larger in the more urban areas. Agricultural employment is higher in all the rural regions. The national agricultural employment rate is 25.7%, thereby lowest in the capital region in Southwestern Bulgaria (estimated 9%) and highest in Severoiztochen in Northeastern Bulgaria (estimated 40%).

4.4.3 Summary of key points

Even though information about rural employment varies between countries and regions, several consistent features can be identified:

Average employment rates for men range from 73% in the Czech Republic and 71% in Romania to only 56% in rural Latvia and 54% in Slovakia. In rural areas, these rates are generally lower than in urban areas. Employment rates for women are, in all countries, lower than those for men, typically by around 7-8 % points. In the Czech Republic the difference between men and women is even 17 % points, whereas in Lithuania it is only 3 % points. Lower employment rates for women indicate, that women are more involved in taking care of the family and have possibly more difficulties to find a job than men. Differences in the employment rates across the countries are partly caused by differences in registered unemployment rates. In the case of Romania, the high employment rate goes hand in hand with the high share of self-employed and unpaid family workers in (subsistence) agriculture.

In most countries, unemployment is consistently shown to be a more serious issue in rural areas. For example, in Estonian rural areas, the unemployment rate was approximately 1.5 fold of the urban rate in 2001. The Slovakian experts give the example that the official unemployment figure in rural areas increased dramatically, to over 37% in some rural districts, and even 62% in some villages. Long term unemployment is a common phenomenon and unemployment amongst women and young people can be especially high. Rural unemployment would be more extensive if the underemployment found in the larger agricultural sectors in the more rural districts were recognised. Underemployment is probably a feature of small farm structure and thus does not necessarily apply to all regions. Rural employment consists for the most part of self-employed people and unpaid family members, whereas in urban labour markets many more people have an employee status. Precise figures on underemployment in agriculture are not available, but for Poland the country experts estimate the degree in the different voivoidships at 16% to 40% of total agricultural labour input.

Rural employment patterns have been changing inexorably, with falls in both agricultural and industrial employment. Given that industrial enterprises in most rural regions, except in the case of many Romanian districts, employ many more people than agriculture, these changes in the demand for labour by industry have more significance for the rural workforce than does agricultural employment. The point was made by several country experts that where large industrial enterprises, e.g., in the mining sector, have closed down, the local effects are especially serious. Employment in the service sector has been growing, but mainly in urban centres, and more slowly in most rural districts. Even so, the service sector is by far the most important employer in the rural areas of most of the new Member States. For Czech rural areas, industry is more important. Also, Hungary, Slovakia, Poland and Estonia have relatively highly-industrialized rural areas. In contrast, in Romania and Lithuania, agriculture is the sector which is most important for employment in rural areas.

All the above points may be moderated by the fact that very little is known about the informal economy. The subsistence agricultural sector is a case in point in that people may organise their lives according to different paradigms than those that lie behind the statistics. Moreover, it is well known that the families of small farms rely greatly on the earnings from off-farm income sources as discussed in the following section.

4.5 Economic activity and incomes

4.5.1 Overview

One of the beliefs which supports the case for agricultural support is that the rural economy is based, to a large extent, on agriculture and its support industries. But agriculture cannot provide the basis for sustained and dynamic rural development in the future, and a key question is the ability of rural areas to diversify their economic base. How competitive are small and medium enterprises (SMEs) based in rural areas relative to their urban counterparts? The corollary of economic diversification is the emergence of multiple income of rural households in which agriculture is no longer the sole income source, but where there is a growing amount of part-time farming and pluriactivity. This section investigates the composition of economic activity in rural areas from these two angles.

Looking at the composition of gross value added (GVA) on the NUTS-3 level raises doubts whether agriculture still plays such an important role for rural economies, as many believe. Only in 7 out of 177 NUTS-3 regions (Slovenia: NUTS 1) in the new Member States does agriculture contribute more to the total GVA than services and industry, respectively (see Map 4.7). However, as shown above in Map 4.5, the importance of agriculture in terms of employment is higher than in terms of GVA. The share of agriculture in GVA and the GDP per capita show a high negative correlation. Therefore, in the relatively wealthy regions, (Slovenia, Hungary, Czech Republic) the share of agriculture in GVA is relatively low, whereas in many Romanian and Bulgarian regions this share exceeds 25%. However, particularly in these two countries, regional variations are rather strong.

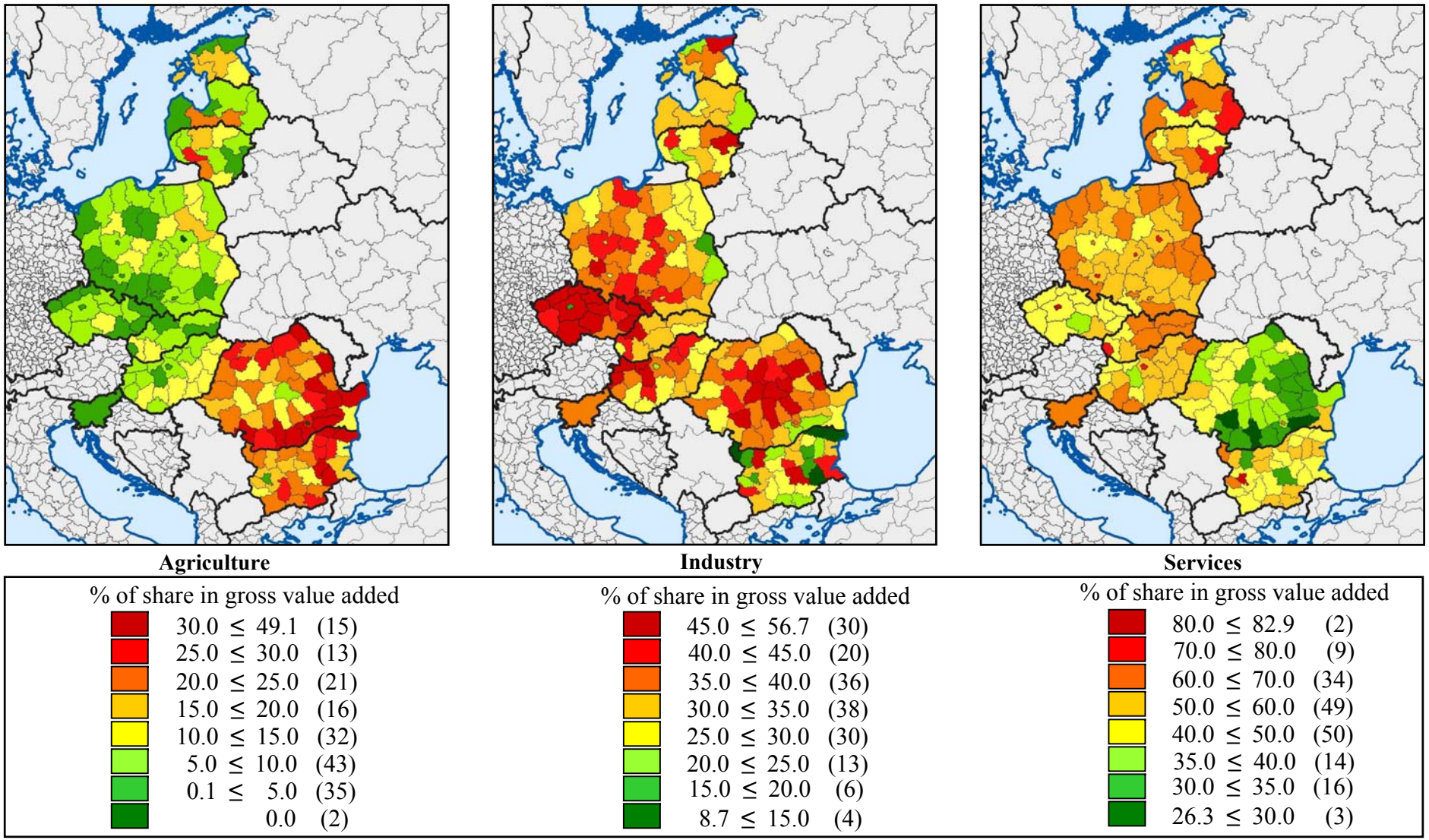
Many regions struggle not only with problems of restructuring agriculture but also with restructuring industry. Industry has a high share in gross value added in the Czech Republic, Central-Romania, Western Slovakia, Northern Hungary, parts of Poland, Estonia, Lithuania and Bulgaria (>40%). Very low shares (<25%) exist in Bulgarian regions, Southern Romania, Eastern Poland, Eastern Latvia and many city regions. In the latter, the service sector is much more important, with a share in GVA of above 70%. In contrast, the tertiary sector is of relatively low importance, particularly in Romania, (in many regions, the share is below 40%) but also in the Czech Republic, Western Slovakia, Western Hungary, parts of Bulgaria, Poland and the Baltic states (below 50%).

4.5.2 Country profiles

In **Estonia,** agriculture's share of the total value added declined from 4.3% in 1998 to 3.7% in 1999, and to 3.0% in 2002 (including hunting, forestry and fishing, 6.7% in 1999 according to EUROSTAT´s Regio data). Industry forms a much larger part of GVA, but its share is also declining in most regions. The largest, the service sector, is growing in all regions. There is a heavy concentration of economic activity in the capital region, which produces 58% of the national GVA. Not one of the other five regions produces more than 10% of the national GVA.

There are large differentials in wage rates around a mean of EUR 353 per month, but much less variation between regions, except for sectors with less organised labour markets. Estimates of aggregate rural incomes are available and firstly show the importance of social security payments, secondly, the significance of employment in towns, and thirdly, of paid employment even in rural areas. There are few rural self-employed people (see Table 4.43).

Map 4.7: Share of agriculture, industry and services in total gross value added in %, 1999 [1)]



Notes: The number of regions in each category is given in parentheses. [1)] Romania 1997, Hungary 1998.
Source: Author´s computations based on EUROSTAT's Newcronos Regio data.

Table 4.43: Sources of rural household income in Estonia, 2001

	Number of rural households with main source of income (000's)	Share in total population (%)	Share in total rural income (%)
Social payments	37	20.9	17
Non-agricultural jobs in urban economy (employed and self-employed)	31	17.6	22
Paid non-agricultural jobs in rural economy	39	22.0	24
Paid agricultural employment	29	16.4	13
Work on own farm	27	15.2	16
Self-employment in rural areas	9	5.1	5
Others	5	2.8	3
Total	**177**	**100**	**100**

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries (Calculations based on Agricultural Census 2001, Population Census in 2000 and Social Statistics).

In **Latvia,** agriculture contributed just 4.5% of overall GVA in 1999, and has been declining quickly. In the Zemgale region, the contribution of agriculture reaches 22%, but as noted for other such regions, this figure is determined by the smallness of the regional economy. Industry has also been declining quickly, by 8% points within the period 1996-99 in Riga province. There has been commensurate growth in the service sector in all regions, with 66% of national GVA being accounted for by the Riga province alone.

Wage rates are relatively low, ranging from EUR 200 per month for a farm worker, to EUR 300 for a clerk and EUR 345 for a building worker. A most striking statistic is that 60% of farm income comes from social payments. The proportion of total disposable income of farm households accounted for by social transfers has increased significantly since the early 1990s. Net income from agricultural production has decreased.

A breakdown of gross fixed capital formation (GFCF) by category is not available. 66% of GFCF occurs in Riga, as does 60% of FDI, which is in line with the pattern of GVA. The ratio of GFCF to GVA is high at 35%, and such rates and higher also occur in each region.

In **Lithuania,** agriculture contributes 8.4% of GVA (1999). In some regions, this figure reaches almost 30%, but even so, in scarcely a region does agriculture exceed the size of the manufacturing sector. The regions where the contribution of agriculture is high apparently have a small economic base. In other words, agriculture is relatively important because the rest of the rural economy has not developed. Services dominate in their contribution to GVA, comprising 60.8% of the national economy. 33% of national GVA is produced in the region of the capital.

Wage rates are low in comparison with other new Member States, with a gross minimum wage of EUR 116 per month, wage rates for farm workers being quoted as EUR 178 per month and for a clerk EUR 307 per month. Rural people rely on social security payments for a third of their disposable incomes, followed closely by earnings from employment, self-employment and agriculture (see Table 4.44). The heavy reliance on social security payments is primarily due to retirement and pension income of the aging population and the larger families in rural areas.

No regional breakdown of gross fixed capital formation is available. At the national level, GFCF is estimated to be 20% of GVA.

Table 4.44: Composition of rural and urban monthly income in Lithuania (%), 2001

	Rural	Urban
Total disposable income	**100**	**100**
Income from employment	31.0	60.8
Income from self-employment	27.2	6.2
- Income from agriculture	24.3	2.1
- Income from business, crafts, other prof. activity	2.2	3.8
- Income from other (non-business) activities	0.7	0.3
Income from property, rent	0.1	0.2
Income from social security	33.3	21.2
- Retirement pensions	19.3	12.3
- Other social benefits	14.0	9.0
Other income	8.3	11.6

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

In 1999, agriculture in **Poland** contributed just over 4% of GVA, with a range for the NUTS-2 regions from 2.2% to 8.3%. Industry is a much larger part of the total and in all regional economies. The national contribution to GVA for industry is 34%, with a regional range from 27.2% to 41.4.%. In all cases, the service sector is the largest part of the economy, contributing 61.8% to the national economy, with a range within the regions varying from a low of 55% to a high of 69% in the capital region. The contribution of agriculture to GVA declined in all regions by 2.9 % points between 1995 and 1999. Likewise, in all but one region, industrial output has declined by 3.9 % points. In contrast, in all regions bar one, there has been a rise in the output of the service sector by 6.9 % points. The proportion of GVA produced in the capital region is 19.6%. There is a more even distribution of economic activity across all NUTS-2 regions than is the case in many other new Member States.

Estimates of the components of rural incomes (see Table 4.45) show how some 1.5 million households, or 22.6% of the Polish population, depend on social security payments (1995). Social security payments and paid employment are the main sources of rural incomes, with work from own farm incomes making a much lesser contribution, but which is nevertheless important for over 1 million households. It is estimated that approximately half of all paid jobs are based in urban areas. Self–employment, apart from farmers, makes up a small part of the rural workforce.

Table 4.45: Income and employment of the rural population in Poland, 1995 (or 1998)

	Number of rural households with main source of income (000's)	Share in total population (%)	Share in total rural income (%)
Year	1995 [1)]	1995	1998 [2)]
1. Social payments	1,501	22.6	34.3
2. Non-agricultural jobs in urban economy (employed and self-employed)	1,105	32.7 [3)]	36.1 [3)]
3. Paid non-agricultural jobs in rural economy			
4. Paid agricultural employment	148	4.4	
5. Work on own farm	1,062	31.4	20.9
6. Self-employment in rural areas	148	4.4	4.7
7. Others	153	4.5	4.3
Total	4,116	100	100

Notes: [1)] Based on 1995 Micro Census. [2)] Based on Labour Force Survey. [3)] It might be assumed that about half of employees commute to towns.

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Agriculture in the **Czech Republic** is a very small sector, both nationally (3.9% of GVA in 1999) and within the regions. Wage rates show considerable variation between sectors, with

an average of some EUR 400 per month. The lowest wage rates are for those in hotels and catering, the highest in finance. There is some small variation in wage rates between the regions. Gross fixed capital formation is concentrated around Prague, which accounts for 25% of the total. However, when gross fixed capital formation is expressed as a ratio of GVA, a more equal distribution is apparent around a high national level of some 33%.

After some dramatic changes in the share of GVA from each sector in **Slovakia** in the early 1990s, the contributions are now "more normal". Nationally, agriculture's contribution is around 5.9%, industry 33.1% and services 61.0% (1999). The share of industry has been falling at a high rate, (6.9 % points between 1995 and 1999) while agriculture has held its own and services have grown impressively (6.2% points). There are the usual variations between regions, with services being heavily concentrated within Bratislava.

Excellent data is available on actual wages by district and sector. The following summary in Table 4.46 shows how there is not only variation between sectors, but also more variation in actual wages between different types of district (individual district variation will be greater than the means quoted in the table). In addition, it can be seen that whereas agriculture, as expected, has relatively low wages, the sector with the lowest wages is trade in the least-developed rural regions.

Data are also reported of investments by type of region expressed per 1,000 of population, (see Table 4.47) which dramatically shows how rural areas are falling behind in investment. In 2000, the procured investments in Slovakia totalled EUR 7,137 million.

Table 4.46: Average monthly wages by sector in Slovakia, 2000

	Average monthly wage		Average monthly wage as a % of Slovakian average of the respective sector				
	in EUR	%	agriculture	industry	manufacturing	construction	trade
Urban districts (9)	373	134	118	144	149	119	142
Most-developed semi-rural districts (19)	272	98	104	99	100	95	95
Least-developed semi-rural districts (18)	228	82	100	80	81	82	71
Most-developed rural districts (17)	249	90	102	95	94	89	78
Least-developed rural districts (16)	213	77	93	74	73	82	67
Slovakia	**278**	**100**	**100**	**100**	**100**	**100**	**100**

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries (WB 2002).

Table 4.47: Investments in Slovakia, 2000

Type of district	% of total	Mill. EUR/1,000 inhabitants
Urban districts	62	6.402
Most-developed semi-rural districts	19	0.870
Least-developed semi-rural districts	8	0.494
Most-developed rural districts	8	0.471
Least-developed rural districts	3	0.400
Slovakia	**100**	**1.318**

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries (WB 2002).

Agriculture in **Hungary** contributes 4.8% of national GVA, with the highest rate of 10% in the Northern great plain (1999). This contribution is declining in all regions. Growth has occurred in the much larger industrial sector, which makes up a third of the economy in most regions. Surprisingly, there has been only very small growth in the proportion of GVA de-

rived from the service sector (62.8% of national GVA). 42% of national GVA is produced in the capital region, whereas the service sector accounts for almost three-quarters of economic activity.

Wage rates vary between sectors and there are significant differences between regions. In 2000, a building worker in the capital region was paid, on average, EUR 302 per month, whereas in the southern great plain region and in Southern Transdanubia, equivalent rates are EUR 232 per month. A teacher, on the other hand, receives a monthly wage of EUR 775 in the capital region and EUR 510 in the Southern Great Plain region. On the whole, women's wage rates are lower than those for men. In 2000, the minimum wage rate in Hungary was EUR 143.

All forms of gross fixed capital formation, including public infrastructure, is equivalent to 26% of GVA on a national basis. Most regions have equivalent ratios rising to 30.2% in Northern Hungary, which has the highest rate. The lowest rate is for the Southern Great Plains, at 15%. 41% of gross fixed capital formation takes place in the capital region. This region also attracts 70% of the total aggregated FDI, which was EUR 12.0 million in 2000. Nevertheless, there is, on a GVA basis, a fairly even distribution of capital formation and a slight tendency for the share of public investment, at 18% of the total national GFCF, to be slightly higher in the poorer regions. In so far as most capital formation is done on a private basis, then the question arises as to what conditions prevail to bring about such an even geographic spread.

Agriculture in **Slovenia** is economically of minor importance, with less than 1% of the total GVA (in GDP 2.9%, together with food processing around 6%). The industrial sector contributes 37.9% and the service sector 61.3%. Services are growing quickly (3.3 % points between 1995 and 1999) and industry is declining (3.1 % points). No data is available on rural wage rates, but information on farm incomes shows that only 11.9% of farms rely mainly on farming for their income. 36.9% have mixed sources of income, and 50.7% of holdings are involved in non-agricultural activities.

The **Romania**n economy relies on agriculture more than most countries, with some 19.5% of GVA being derived from this source in 1999. Some regions derive a quarter of their economic output from agriculture, while others, apart from Bucharest, about 15%. Industry contributes almost 40% of GVA with a regional range from 33% to 46%. Nationally, services account for 41.5% of GVA, with a range from 32% to 58% in Bucharest. Output from agriculture has been falling except for a small rise in the South-east. Similarly, industrial output has fallen, except for the central regions. The service sector has grown but not fast enough to have prevented a decline in national output in the late 1990s. Growth in the economy has picked up in more recent years. Bucharest accounts for 14.3% of GVA and there is a fairly even distribution of output between all regions.

Wage rates are low in comparison with other CEECs, with about half the level of those in the Baltic States. Farm workers get considerably less, around EUR 82 per month, nurses and teachers EUR 110 per month and administrators some EUR 160 per month. Rates are higher in Bucharest. The estimates of aggregate rural incomes indicate that there is a great deal of reliance on social security payments, with over 19.6% of rural incomes derived from this source. Paid non-agricultural employment is the most important source of income, contributing 25.9% of rural income, with an additional 13.1% from paid agricultural employment. The category "other income" will doubtless include an important contribution from own farm activities. Self-employment contributes a very small part of total income.

Agriculture in **Bulgaria** is an important component of national and regional economic activity. Agriculture's contribution to the national GVA is some 16%; in all regions except for the capital, it makes up around 20 to 27% of regional GVA (some 35% of national GVA is pro-

duced in the capital region). In most regions, over the period 1996 to 1999, the share of agriculture's contribution has been growing (with just one exception). The contribution of industry to both regional and national GVA is mostly higher than from agriculture, at 27% nationally and over 30% for many regions. A contraction of the share of industrial output has taken place in all regions except in the region of Yugoiztochen in Southeastern Bulgaria. However, the main sector in all regions is the services sector, where the share of output is typically of the order of 50%. Here, there is some evidence of growth but not in all regions. The implication of these figures is that rural unemployment has not been caused by a contraction in the agricultural labour force alone. Growth in rural regions can be based upon agriculture (Severozapaden), manufacturing (Yugoiztochen) or services (Yuzhen Tsentralen).

However, there are worrying signs. A simple analysis of private gross fixed investment in buildings and machinery and vehicles shows that almost 60% of this type of capital investment is confined to the capital region. 62% of FDI is also in the capital region. Expressed as a proportion of regional GVA, gross private fixed capital formation is some 40% of GVA in the capital region, falling to 4.4% in the lowest case, and with a range of 9.4% to 16.2% for all other regions. In several regions, gross fixed capital formation in buildings and equipment will not cover depreciation. Future growth will necessarily be concentrated in the capital region, unless profitable investments can be found in the more rural regions.

Wage rates in Bulagaria show a similar low level as in Romania. In 2000, farm workers under labour contract receive on average EUR 93 per month, ranging from EUR 80 in Yugozapaden to EUR 102 in Severoiztochen. The average wage rates for building workers and nurses are similar to those in paid in agriculture. Teachers (EUR 103), drivers (EUR 117) and clerks (EUR 138) get more. The minimum wage in Bulagaria is EUR 51.

4.5.3 Summary of key points

The economic performance of regional economies is mostly dependent on the industrial and service sectors. Agriculture is a more important source of output in the more rural regions. Growth is most commonly associated with a fall in agricultural and industrial output and a rise in the output of services, but there are exceptions. In some regions, such as Bulgaria, agricultural output is increasing. In Hungary, industrial output is rising. The service sector tends to be based in urban areas, especially in capital regions. There is thus a highly uneven distribution of gross value added between urban and rural regions. For example, in Estonia, the capital region accounts for 58% of the national GVA. However, in some countries there would seem to be more economic cohesion (Czech Republic, Hungary and Poland). In Romania as well, there is a fairly even distribution of output between all regions, with Bucharest accounting only for 14% of total GVA.

Wage rates vary substantially between sectors, with agriculture and trading activities being the sectors often with the lowest wage rates. Wage rates also vary between regions, typically being much higher in the capital regions and much lower in more rural locations. Wages expressed in EUR show marked country variation. They are especially low in Romania and Bulgaria (around EUR 80 per month for agricultural workers). Women, on the whole, receive lower wages than men.

Rural incomes depend heavily on social payments and on paid employment in both the urban and rural economy. For example, the country experts report that social payments are the main source of income for around one third of the rural households in Estonia, Lithuania and Poland. There are very few self-employed people outside of agriculture. Incomes from own farm activities are also an important component of overall rural family incomes.

An analysis of gross fixed capital formation, where data is available, throws up two interconnected issues.

- In most countries, investment in relation to the GVA would appear to be high enough to generate future growth. But in some countries and many rural regions this is not the case.
- Urban centres, and especially the capitals, tend to attract a greater proportion of investment. (In Slovakia, in 2000, investments in urban districts amounted to EUR 6.420 mill. per 1,000 inhabitants, compared with EUR 870,000 per 1,000 inhabitants in the most-developed semi-rural districts, and only EUR 400,000 per 1,000 inhabitants in the least-developed rural districts). There is a more even distribution on a regional GVA basis, but less on a per capita of population basis.

The policy response to this fact is problematic. Most investment is financed privately and public investment will be based, to a large extent, on the size of the local tax base. It could be argued that eventually capital investment will move out of urban areas to regions with greater opportunities, but will this occur through market mechanisms or not? An analysis of investment patterns and causes for those countries which have a more even regional location of economic activity would be helpful.

4.6 Commuting

4.6.1 Introduction

As discussed in the previous section, agricultural employment will probably continue to decrease in future, which is necessary to improve the competitiveness of this sector. Despite measures of rural development, it is not likely that it will be possible to create sufficient non-farm jobs in rural areas to absorb those exiting the agricultural sector (FOUNDATION FOR THE DEVELOPMENT OF POLISH AGRICULTURE 2002, p. 96). Both inward investment and local businesses needed for job creation are rare, because the former further concentrates mainly on major cities and the latter lacks capital (see section 4.5). Thus, commuting, which has been a long established and growing practice in the new Member States, should be further supported, e.g., by improving the transportation infrastructure. Up to approximately 50% of the rural workforce commute to urban areas – in most cases daily, but in some cases also weekly, or seldomly even monthly over long distances. Commuters are predominantly young males who widely use public transportation. Statistical data of the commuting phenomenon are rare, and as such, the following findings are mainly based on the assessments of the country experts.

4.6.2 Country profiles

The household accountancy data of rural municipalities in **Estonia** shows that more and more people seek and find jobs outside of their home rural municipality. In 2000, 63,900 people, i.e., 40.4% of the rural labour force (158,000 people), were recorded as commuting to work in towns and cities. The respective figure at the beginning of 1995 was 40,700 employees, i.e., 24.9% (see Table 4.48). The percentage of people employed outside of their home rural municipality at the beginning of 2000 was the highest in Harju (50.5%), Ida-Viru (46.7%) and Tartu (44.7%) counties. Construction and transport jobs are specifically mentioned as the main employers for such workers.

Table 4.48: Number and percentage of people employed outside of the home rural municipality in Estonia

	1995	1996	1997	1998	1999	2000
Total employees (in 1,000)	163.4	161.6	159.3	162.1	159.1	158.0
Employed outside of home rural municipality						
absolute in 1,000	40.7	45.9	52.2	55.4	57.6	63.9
share in %	24.9	28.4	32.8	34.2	36.2	40.4

Sources: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries (ESO "Population of Estonian rural municipalities" 1995-99; "Rural municipalities population 1 January 2000").

The common perception of the typical rural commuter in **Lithuania** is that of a farm household member unable to make a sufficient living from farming and so gets a job in an urban centre. However, the forgoing analysis provides evidence that the rural commuter is probably more likely to be a displaced industrial worker than a farmer. The Lithuanian country experts provide evidence of two other kinds of rural commuters. Firstly, the urban family members who are likely to be professionals, but after land restitution came to live on their farm during the turbulence of transition, and who now go to work in towns. Secondly, the urban workers who prefer to live in the countryside and commute to their urban jobs. The subjective assessment mentions that commuting is growing and that construction, services, and blue colour workers are the main employment for many commuters. Young people are more likely to commute because they have more diverse occupational skills and a non-agricultural education. Men usually commute to more remote industrial areas, while women are likely to seek employment in nearby settlements or townships. Due to the fact that Lithuania has a relatively spread location of towns throughout its territory without particular concentration in one part, the commuting distance is usually 25-50 km on a daily basis. Public transport is especially important for short commuting distances.

For **Poland**, the experts estimate that a high share of the rural workforce commute daily, searching for jobs and additional income sources; this is concentrated around the largest urban agglomerations. The FOUNDATION FOR THE DEVELOPMENT OF POLISH AGRICULTURE states in its Rural development report (2002) that especially a large proportion of rural dwellers *working outside of agriculture* commute to work in urban areas. Examples are the regions Malopolskie with 65% of the non-self-employed commuting, the capital region Mazowieckie with 55% and Wielkopolskie with 50%. The average commuting distance is said to be 12-19km. According to the country experts, men commute the most. There seems to exist a social constraint that women are less mobile, perhaps due to taking care of households. Older male farmers commute less. However, the number of non-farming commuting workers living in rural areas is growing. Trading, security services, construction and office work are sectors of employment. Commuting from greater distances is common, and public transport very important.

Some 44% of the rural labour force in the **Czech Republic** is reported to commute to urban centres to work, with 83% doing this on a daily basis. According to the Census of 2001, commuting is more common among younger workers (see Table 4.49). Gender differences are similar to Poland, again because of social constraints (child care), and are most pronounced in Severozápad. There, 53 % of the male rural labour force under the age of 40 commute, whereas the respective share for women is 38%. Construction is stated as the main employment for commuters, but other sectors are also supplied with this kind of worker as they expand. Public transport was a critical problem in the middle of the 1990s, but seems to has been resolved.

Table 4.49: Proportion of the Czech regional rural labour force who commute to work in towns and cities by age and gender (%)

	Total					Distance up to 50 km			
	total	under the age of 40		over the age of 40		under the age of 40		over the age of 40	
		male	female	male	female	male	female	male	female
Praha	**7**	10	6	9	4	7	3	6	2
Střední Cechy	**56**	64	56	55	47	53	48	47	42
Jihozápad	**43**	52	42	42	32	41	35	36	29
Severozápad	**42**	53	38	45	31	40	31	37	28
Severovýchod	**42**	52	41	41	31	41	34	35	28
Jihovýchod	**42**	52	41	41	30	39	34	33	28
Střední Morava	**46**	55	45	45	35	42	38	37	32
Moravskoslezko	**40**	50	36	43	29	40	30	37	27

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries (Czech Statistical Office).

The qualitative response refers to the growth in the practice in **Slovakia**, mainly on a daily basis, more seldom weekly. Male workers commute more frequent than female and find employment especially in the construction and transport sector. Some regional patterns can be observed associated with growth in western Slovakia. Public transport is seen as very important.

About one third of the rural labour force in **Hungary** was estimated to commute in order to find work in 2001 (cf. Table 4.50). The proportion of the total regional labour force was substantial, especially in progressive regions like Central and Western Transdanubia, as well as declining areas like Northern Hungary. Farm workers commute to a lesser degree. Males commute easier and the same is assumed for younger people. Before the transition, weekly and monthly commuting was common, which has changed to daily commuting. However, 2-3 hours per day can be typical for travelling, and public transport is extremely important. People have a low readiness to move: sometimes multinationals have closed factories, and when they offered jobs in another town, only few people accepted the offer (cf. section 5.1.1 for the insufficient physical infrastructure hampering labour mobility). However, in place of growing commuting practise, the experts consider moving more likely in future. Accession may result in some favourable trends in local jobs if pre-processing and local services will be more extended and generate them.

Table 4.50: Proportion of the Hungarian rural labour force which commutes to work in towns and cities (%), 2001

	Proportion of commuting rural labour force
Central Hungary	25.2
Central Transdanubia	39.2
Western Transdanubia	34.7
Southern Transdanubia	30.7
Northern Hungary	34.9
Northern Great Plain	23.8
Southern Great Plain	19.6

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

In **Slovenia**, the degree of commuting is also thought to be increasing due to the higher concentration of available jobs in cities and towns. There are no gender differences observable, but younger people are more likely to commute because of their higher flexibility. Most of them commute relatively short distances daily. Public transport is relatively important, but a

quite high proportion of commuting is done by private transport (e.g., cars). Typical employment for commuters is office work and various services.

Before the collapse of the socialist system in **Romania**, people had begun to commute to urban areas, especially in regions nearer the cities. The situation changed radically after 1989, when almost all commuters became unemployed and returned to work in agriculture. After 1995, industry in urban areas was restructured and for this reason, commuting again sharply declined. Young people are more likely to commute than older workers, mainly on a daily basis with a high importance placed on public transport. An analysis of residence changes according to the age structure of people within both types of area revealed that the most mobile segments of the population are those 25 to 29 years-old, with a positive flow from rural to urban and an adult population 40 to 54 years-old, with a positive flow from urban to rural. The kind of jobs in urban areas that rural people mostly fill are construction, industry and services.

In **Bulgaria,** commuting is prevailingly from less developed areas. Younger people and men are more likely to commute and mainly find jobs in construction. Public transport is important for commuting to take place. The practise is thus: from villages close to cities daily, and from remote areas monthly.

4.6.3 Summary of key points

Commuting by rural people to urban based jobs is consistently a common and growing practice. Up to half of the rural workforce may be involved in this type of employment. A high proportion of rural commuters commute on a daily basis. A monthly basis is only mentioned by the Bulgarian experts in the case of remote areas. The availability of public transport is important for commuting. Only for Slovenia is it reported that a quite high proportion of commuting is by private transport (e.g., cars). Young and male workers are more likely to commute to work. Females are more constrained by family responsibilities. For example, in all Czech NUTS-2 regions except for Prague, the proportion of the female rural labour force who commute is between 10 to 15 % points lower than the corresponding figure for men. The most often-mentioned sectors where commuters get employment is construction and transport. Commuting to work by rural people has been an established practice for a long time. It has adapted during the transition to a market economy in response to structural changes in both industry and agriculture. There is some evidence provided for different types of rural commuters, including those who chose to live in the countryside and work in towns as a preferred lifestyle as opposed to the more common person who cannot get a job near where he lives. Land restitution has also influenced the practice. For example, in Latvia, many displaced urban families, after land restitution, came to live on their farm during the turbulence of transition and now go to work in towns.

4.7 Assessment of the potential for alternative income generation activities in rural areas

4.7.1 Introduction

A forward-looking assessment of the prospects for alternative income-generating activities in rural areas was sought, based on objective and subjective information. Objective information would include relative levels of investment per capita and per GVA, (discussed earlier) as well as the relative levels of business start-ups across rural and urban regions (discussed in this section where information is available, i.e., Hungary, Romania and Bulgaria). Subjective information was also sought from the country experts concerning their own expectations for the prospects for such alternative income-generating activities in rural regions. The experts were asked to rank the following activities, which are often mentioned in the public, using a

score between 1 (poor) and 5 (good) for the assessment of their likelihood of occurrence, weighted by the extent of the opportunities:

- (agro)tourism, which is often mentioned due to beautiful landscapes and a high share of semi-natural lands (see chapter 7),
- the processing and promotion of locally-based foods and drinks, including products from organic farming,
- manufacturing,
- IT-based activities like tele-working, which could bridge the distance to urban centres,
- other activities.

The country experts were also asked to state the regional characteristics that influenced their views.

4.7.2 Country profiles

In **Estonia,** the sum of the regional rankings of expectations for growth by sector showed no differences between sectors. However, expectations for a specific sector vary across regions. Energy is seen as an important future activity. The summed weights by region produced the usual highest weighting for the capital region (see Table 4.51).

Table 4.51: Expectations of alternative income-generating opportunities in Estonian regions

	Tourism	Specialist food and drink	Manufacturing	IT based	Energy
Prospects	Good 54321 Poor				
Northern region	4	4	5	5	1
Central region	2	2	3	3	2
North-eastern region	1	3	4	2	5
Western region	5	4	2	3	2
Southern region	3	3	2	2	4

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

In **Latvia**, tourism is believed to be the most promising future economic activity, followed by food, manufacturing and IT. Riga is seen as the region with the best prospects, while the very poor region of Latgale is associated with much less optimistic prospects (see Table 4.52).

Table 4.52: Expectations of alternative income-generating opportunities in Latvian regions

	Tourism	Specialist food and drink	Manufacturing	IT based
Prospects	Good 54321 Poor			
Riga	5	5	5	5
Vidzeme	5	4	3	2
Kurzeme	5	4	3	2
Zemgale	5	4	3	2
Latgale	4	3	2	2

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

However, at the moment, the potential of tourism in Latvia is poorly developed. Data from the balance of payments of Latvia show that tourism accounts for about 1.6% of GDP, whereas in the EU Member States, this amounts to an average of 4.2%. The share of persons directly and indirectly employed in tourism in Latvia is 0.3%, and 5%, respectively.

Although the development of tourism in the last few years has shown certain positive tendencies, there are still several factors hindering the growth of the sector:

a) incomplete or misleading information on the situation in Latvia, economic development, security and political stability, inadequate tourism marketing in local and international markets, lack of co-ordination of tourist marketing in the Baltic States;
b) shortage of world-class tourist attractions;
c) poorly-developed or low quality tourism infrastructure;
d) low purchasing power of Latvian residents (regarding local tourism);
e) lack of political understanding as to the importance of tourism for the development of the national economy, shortage of administrative capacity in state and municipal institutions.

Economic activities related to the production of goods and services of information technologies in 2001 equated to approximately 4.6% of GDP (compared to 3.2% in 1997). Most IT activity is concentrated in Riga.

An overall assessment in **Lithuania** is based on the belief of a staged path to economic growth, beginning with a stronger orientation towards servicing agriculture and the demands of the rural population. Then, by improving infrastructure, the chances of success in alternative income activities will increase. Tourism has the highest expectation of future prospects, with other sectors receiving moderate to low rankings (see Table 4.53).

Table 4.53: Expectations of alternative income-generating opportunities in Lithuania

	Tourism	Specialist food and drink	Manufacturing	IT based	Social services, education, construction, crafts	Multiplier effects
Prospects	Good 54321 Poor					Strong 54321 Weak
Lithuania	5	2	3	3	4	3

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

The weights in **Poland** given to expectations show how existing prosperous regions, and especially the capital, are considered to have the best prospects. Most peripheral and rural regions are thought to have relatively poor prospects, especially on the Eastern border. The sector which is seen to have the brightest prospects is tourism. Food, manufacturing, IT and infrastructure are given more or less the same weights (see Table 4.54).

Table 4.54: Expectations of alternative income-generating opportunities in Polish regions

	Tourism	Specialist food and drink	Manufac-turing	IT based	Infrastructure (e.g., highways)	Multiplier effects
Prospects	Good 54321 Poor					[1]
Dolnoslaskie	3	2	3	2	3	3
Kujawskopomorskie	3	2	3	2	1	2
Lubelskie	2	2	1	1	1	1
Lubuskie	4	2	1	1	2	1
Lodzkie	1	1	3	1	2	2
Malopolskie	4	3	1	1	2	3
Mazowieckie	2	1	4	4	4	3
Opolskie	2	1	2	2	2	2
Podkarpackie	4	4	1	2	1	2
Podlaskie	1	2	1	1	2	1
Pomorskie	3	2	2	2	1	1
Slaskie	1	1	3	2	2	2
Swietokrzyskie	3	3	2	2	2	2
Warminsko-Mazurskie	4	1	1	1	2	2
Wielkopolskie	2	2	3	3	3	2
Zachodniopomorskie	3	1	1	3	2	1

Note: [1] Strong 54321 Weak.
Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Only a national assessment was given in the **Czech Republic**. All regions are considered to be mixed rural-urban, so that all activities have the same potential (3). Tourism ought to be developed, but it will never be the most important rural activity and income source. The country experts emphasized that a strong industrial business in a region causes significantly better development than in other regions. Manufacturing is seen with very high multiplier effects (5). An interesting addition to prospective economic activities was landscape and environmental management.

The information on expectations in **Slovakia** shows that apart from tourism, which has a slightly lower weighting, all the other sectors have an equal weight when added across the regions. The more prosperous West is perceived to have the best future prospects. Trade is seen as an additional sector which influences future economic conditions (see Table 4.55). The conditions for growth include a dense network of SMEs, institutions which work, opportunities for trade with neighbouring countries, natural conditions for tourism and infrastructure, including transport.

Table 4.55: Expectations of alternative income-generating opportunities in Slovakian rural regions

	Tourism	Specialist food and drink	Manufacturing	IT based	Trade	Multiplier effects	Reasons for your assessment
Prospects	Good 54321 Poor					[1]	
Western Slovakia	2	4	3	4	4	3	Relatively dense network of SMEs, relatively well-functioning institutions, good communication access to Bratislava
Central Slovakia	3	3	3	3	2	3	Good natural conditions for tourism, badly-developed infrastructure
Eastern Slovakia	2	2	3	2	3	2	Poor infrastructure, some trade possibilities with Ukraine

Note: [1] Strong 54321 Weak.
Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

In **Hungary,** there are at least twice as many businesses or business start-ups in the central region as elsewhere in the country (see Table 4.56). The lowest value per 1,000 inhabitants is for one of the mainly rural regions; Southern Transdanubia is a fifth of that of the central region. In 2001/02, there were 2.06 start-ups per 1,000 inhabitants in Central Hungary compared with 0.41 in Southern Transdanubia. Nevertheless, the other mainly rural region, the Northern Great Plain, does relatively well (1.03 start-ups/1,000 inh.) when compared to other regions. Summing the weights for the expectations of the development of alternative income-generating opportunities by sector shows that manufacturing is believed to offer the best prospects, which is in line with the Regio data on recent growth in sectoral GVA. However, all the sectors have very similar scores, including IT. The aggregate scores of expectations by region have the highest values in the central regions and the lowest for the most rural regions. Expectations are thus very similar to past levels of performance.

Table 4.56: Expectations of alternative income-generating opportunities in Hungarian regions and business start-ups

	Tourism	Specialist food and drink	Manufacturing	IT based	Multiplier effects	Reasons for the assessment	Business start-ups (total number) in 2001/02	Business start-ups / 1,000 inh. in 2001/02
Prospects	Good 54321 Poor				[1]		H: 11,154	H: 1.11
Central Hungary	3	4	5	5	5	Entrepreneurship, location	5,854	2.06
Central Transdanubia	5	4	5	5	5	Location of several multinationals	1,221	1.10
Western Transdanubia	5	4	4	3	4	Nearby Austria	887	0.90
Southern Transdanubia	4	3	3	3	3	Poor entrepreneurship	400	0.41
Northern Hungary	4	3	4	4	3	Rest of the "socialist industry"	646	0.51
Northern Great Plain	3	3	3	3	3	Lack of motorways	1,573	1.03
Southern Great Plain	2	3	3	3	3	Delayed development	587	0.44

Note: [1] Strong 54321 Weak.
Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

In **Slovenia,** tourism is the sector given the greatest weight for future prospects. The other sectors have more or less equal weight (see Table 4.57). The association between the aggre-

gate regional weight and current prosperity is, to some extent, moderated by the tourism factor. Poor regions without tourism do, however, have a low aggregate weight. The size of the assessed multiplier effects are strongly associated with a large aggregate score.

Table 4.57: Expectations of alternative income generating opportunities in Slovenian regions

	Tourism	Specialist food and drink	Manufac-turing	IT based	Multiplier effects	GDP/head in EUR
Prospects	Good 54321 Poor				[1]	SLO: 9,815
Pomurska	5	4	3	3	3	7,550
Podravska	4	3	3	4	4	8,160
Koroška	3	3	4	3	3	8,508
Savinjska	5	4	3	4	4	8,954
Zasavska	2	2	3	2	2	7,929
Spodnjeposavska	3	2	2	2	2	8,250
JV Slovenija	4	3	3	2	3	9,051
Osrednjeslovenska	4	4	4	5	4	13,073
Gorenjska	5	5	4	4	4	10,025
Notranjskokraška	4	3	3	3	3	10,259
Goriška	5	4	3	4	4	10,025
Obalnokraška	5	4	4	3	4	13,073

Note: [1] Strong 54321 Weak.
Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Information presented on business start-ups in **Romania** in the year 2000 shows that entrepreneurship seems to be in short supply, judging by a mean number of 1.5 business start-ups per 1,000 population, with a mean number of employees of 2.9 (see Table 4.58). The number of urban start-ups, at 28,902 compared with 4,739 in rural areas, demonstrates most starkly both rural businesses conditions and attitudes. Business start-ups are prevalent in more prosperous Bucharest (3.92 start-ups/1,000 inh.) and the Central regions and less in the poorer regions of the North-east (0.93 start-ups/1,000 inh.) and the South.

Table 4.58: Business start-ups in Romanian regions in 2000

	Number of business start-ups	Start-ups / 1,000 inh.	Employees / start-up
North-east	3,545	0.93	3.4
South-east	4,146	1.41	2.8
South	3,247	0.94	2.7
South-west	2,388	0.99	2.3
West	3,096	1.51	4.1
North-west	4,666	1.64	3.3
Central	3,587	1.37	3.0
Bucharest	8,966	3.92	2.5
Urban areas	28,902	n.a.	3.0
Rural areas	4,739	n.a.	2.8
Romania	33,641	1.50	2.9

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries based on NIS.

Estimates of business start-ups in **Bulgaria** per 1,000 head of the total population show a much higher level (10.1 start-ups/1,000 inh.) than in Hungary (1,11 start-ups/1,000 inh.) and Romania (1.50 start-ups/1,000 inh.). There is a great deal of regional variation in Bulgaria and start-ups are most pronounced in the regions along the Eastern coast (see Table 4.59). The country experts also gave these regions the best prospects for rural economies, expressed in

the highest summarized ranking points. According to the country experts, the sectors of agriculture, tourism, mining of coal and extraction of oil and natural gas as well as the production of electricity are most important for the development of rural regions.

Table 4.59: Expectations of alternative income-generating opportunities in Bulgarian regions and business start-ups

	Tourism	Specialist food and drink	Manufac-turing	IT based	Reasons for your assessment	Business start-ups / 1,000 inh. in 2000
National						10.1
Severozapaden	2	3	3	2	As a whole, the region is lagging behind in its economic development. Production of electricity.	8.1
Severen Tsen-tralen	2	3	4	2	There have been some favourable trends in the development of the region in recent years.	7.7
Severoiztochen	5	5	4	3	Strong agricultural and tourist sector – sea resorts. Developed chemical and shipbuilding industry.	9.3
Yugozapaden	4	2	3	2	Developed tourist sector – mountain resorts.	3.6
Yuzhen Tsen-tralen	2	5	4	2	Highly developed agricultural sector. Production of electricity.	8.5
Yugoiztochen	5	4	3	2	Developed tourist sector – sea resorts. Relatively strong agricultural sector.	37.2

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

4.7.3 Summary of key points

An overall view of the set of responses shows positive expections of the CEECs especially in tourism to create alternative income sources in rural areas, followed by manufacturing, specialist food and drink and subsequently IT. In the questionnaire non-specified sectors, where growth is expected to be based and which have been added by the country experts, included investment activities in infrastructure in Poland, energy in the case of Estonia, landscape and environmental management in the case of the Czech Republic and trade in the case of Hungary and Slovakia. Conditions for growth that were mentioned incorporated infrastructure, the importance of natural conditions such as coasts and mountains for tourism, the proximity of neighbouring countries for trading opportunities, an industrial base, effective institutions and communications. In many countries, the already most prosperous regions are considered to have the best prospects.

A critical review seems to be necessary concerning especially the almost universal positive assessments of the importance of (agro-)tourism. For most of the regions the contribution of tourism will probably only be of minor importance, since the tourism market is a global, highly competitive market. In addition, the development of the necessary basic infrastructure and institutions to support tourism is hampered by a lack of capital. This is also underscored by the comments made by the Latvian country experts. It is likely that only in certain areas with favourable conditions tourism can play an important role. The same situation and problems can be expected for other sectors, especially IT. In this context, the Czech expert emphasises, that regional development should and could not only be based on *one* strategy, but all sectors are important for growth. Tourism ought to be developed in Czech Republic, but it will never be the most important rural activity and income source according to the assessment of the country expert.

A specific condition for growth as measured by the rate of business start-ups is entrepreneurship. Start-ups occur less frequently on the whole in rural and poorer regions. This may be explained by a lack of entrepreneurs, in combination with poor business conditions. Where

information on business start-ups is reported, it would seem that the number of such businesses per capita of population, and their small size, is insufficient for creating significant growth.

4.8 SWOT analysis

In an open question, the country experts were asked to list the five most important strengths, weaknesses, opportunities and threats of rural economies with regard to labour markets and off-farm economic development within their country (with 1 referring to the most important factor and 5 to the least important). The key points regarding all countries are summarised below, the tables for each single country can be found in the annex.

The five strengths which are most often mentioned are the existing natural resources with their recreational potential, a relatively good infrastructure, experiences in off-farm business, skilled labour and a high availability of work force. Concerning the agricultural sector, two countries annotated positively also the good reputation of domestic agricultural products and the increasing number of persons interested in organic farming, aquaculture and other non-traditional agricultural production. The interest of the population to live in rural areas, which highly influence migration decisions, is seen as the most positive factor in Slovenia, whereas Bulgaria emphasise its strong tourist and manufacturing sector.

Some of the strengths are also stated as weaknesses, e.g., poor infrastructure and poor qualifications and management skills by six countries. What sounds at first as contrary simply means that the conditions of rural areas should not be generalised, but differentiated according to different classes of population or situations. For Poland, e.g., the differences in qualification are mainly seen as difference between educated employed persons and unemployed people with low skills. Slovakia contrast the positive abundance of labour force with the relatively low level of labour productivity as most important weakness. Other frequently specified weaknesses of rural economies are insufficient off-farm job opportunities, a high share of fragmented agriculture with low efficiency and subsistence production, underdeveloped financial markets, the out-migration of young, skilled people and weak local/regional coordination of development.

The EU accession is seen as an opportunity with respect to available structural funds and development programs, market access and an expected increase of FDI after accession. Hopes are also connected with the improvement of education and vocational training and rural infrastructure, including (tele-)communication networks. A main objective is the creation of alternative income sources and the stimulation of business start-ups and self-employment. Especially mentioned as opportunities are rural tourism, ecological farming, traditional crafts and high-tech-branches (cf. the preceding section 4.7).

The threats are relatively heterogeneous across the different countries. Stated by more than one country are the ageing of the population and migration, which may prove to be a vicious circle, the low absorption of structural funds because of problems in mobilizing own financial resources, the lack of required reforms, the further decline in traditional agriculture and industry, the further isolation of remote areas and growing disparities. In connection with the EU accession, Latvian farmers fear difficulties in complying with EU Standards and Poland fear problems with competing with other EU Member States. Some threats result from macroeconomic developments, such as financial state crisis in Poland, inappropriate tax policies in Slovakia or overall stagnation of economic development seen as a threat in Bulgaria.

Table 4.60: Synthesis of the SWOT analyses for the 10 CEE countries

Strengths (+)	**Weaknesses (-)**
– existing natural resources with their recreational potential (EST, LT, PL, CZ, SK, BG) – relatively good infrastructure (EST, LT, PL, CZ, SK, BG) – experiences/activities in off-farm business (LT, PL, H, SLO) – skilled labour (EST, LT, PL, H) – high availability of work force (EST, SK, ROM, BG) – good reputation of domestic agricultural products, quality, specialisation (EST, LV)	– poor qualifications and management skills (EST, LV, PL, SK, SLO, ROM) – poor infrastructure (LV, PL, CZ, H, BG) – insufficient off-farm job opportunities (EST, CZ, SLO, ROM) – a high share of fragmented agriculture with low efficiency and subsistence production (LV, PL, ROM) – underdeveloped financial markets (EST, LT, BG) – the out-migration of young, skilled people (EST, SK, ROM) – weak local/regional coordination of development (EST, CZ, H)
Opportunities ☺	**Threats ☻**
– EU structural funds and development programs (LV, PL, SK, BG) – better access to EU market (LV, SK, BG) and an expected increase of FDI after accession (PL, CZ) – improvement of education and vocational training (LT, H, SLO, ROM) – improvement of rural infrastructure, including (tele)communication networks (LT, SK, H) – creation of alternative income sources (LT, SLO, BG) – stimulation of business start-ups and self-employment (EST, SLO, BG), especially rural tourism (EST, LT, CZ), ecological farming (CZ), traditional crafts (LT) and high-tech-branches (PL)	– ageing of the population and migration (LV, SLO, ROM, BG) – low absorption of structural funds because of problems in mobilizing own financial resources (LT, PL, SK) – lack of required reforms (PL, BG) – further decline in traditional agriculture and industry (CZ, BG) – further isolation of remote areas and growing disparities (SK, ROM) – unfavourable macro-economic developments (PL, SK, BG).

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

5 RURAL INFRASTRUCTURE AND SERVICES

Public infrastructure is one of the key factors behind economic development in rural areas. Rural infrastructure incorporates physical, social, financial and market infrastructure. Although institutional infrastructure is extremely important for rural development, it has not been singled out in the discussion below for two reasons. Firstly, some major institutions are included in the elaboration of other infrastructure groups such as social, financial and market. Others, like institutions which have an impact on politics, are certainly also important for rural development. However, analysing them in depth here would exceed the scope of this study. Nevertheless, of great interest in this context is how much decentralisation of political decision-making took place and whether the necessary institutions to make this happen were implemented. During socialist times, decisions about rural development rested with the central government. The new Member States will have to build several layers of policy-making below the central one; the lowest one should deal with local politics. Being responsible for their own destiny, the local people have to decide how they want to develop their region. In this way, the best ideas can compete among local regions, and competition is an important vehicle to promote progress. Governments have to play an active role in creating efficient institutional systems at any level.

Physical infrastructure such as transport provides access to input and output markets and fosters labour mobility. Although its density and quality vary between the different regions within each of the CEECs, as a rule, regions leading in development have a better transport infrastructure. In mountainous and/or sparsely populated areas, the infrastructure is underdeveloped and hinders business development and labour mobility. Modern communication systems assist in the exchange of information and allow contacts with input suppliers and customers from a distance, facilityating the development of small rural businesses and alternative sources of income even in remote areas. For this reason, the density and quality of telephone lines (fixed lines) is of high importance, despite the increasing use of mobile phones.

In the new Member States, both the transport and communication infrastructure were built during the central planning years, and attempted to cover both rural and urban areas. However, during the years preceding the dismantling of central planning, and in the 1990s, in most cases the quality of the physical infrastructure has declined. This is due to the lack of public resources and the blurred responsibilities for the maintenance of rural infrastructure.

The social infrastructure includes important services, such as education and health, which influence the choice people have of staying in rural areas or migrating away. In addition, education has a positive effect on farm efficiency and on the development of alternative sources of income (see chapter 4). A higher level of education tends to extend the number of jobs for which an individual is qualified, makes an individual more employable and may increase potential wages. It also facilitates the development of small and medium enterprises (SMEs) in rural areas as it reduces risks caused by a lack of knowledge or skills. Social services were also developed during the central planning period, and some of them are no longer adequate in the market environment. This is particularly true for education.

The development of market infrastructure started during the transition period and the achievements in this area vary considerably amongst the CEECs. Public infrastructure, such as, e.g., institutional support for providing more information to overcome the deficiencies of small-scale agriculture, is of crucial importance in those new Member States with large semi-subsistent sectors. Human capital can also be improved through utilising external expertise, such as advisors and extension agents. General business advice and support for grants and credit applications facilitate diversification outside agriculture and the development of alternative sources of income.

In summary, a strong rural infrastructure is central for alleviating some of the main problems in rural areas in CEECs, such as:

– lagging economic development,
– high unemployment and, in relation to that, low opportunity costs of agricultural labour,
– low labour mobility,
– high dependence on agricultural incomes,
– the depopulation of some rural areas.

The discussion focuses mostly on figures and facts representing national averages for rural areas. However, in all new Member States, quite some diversity exists with regard to the level of rural development. Two general patterns can be observed. One refers to the west-east decline. The western parts of the acceding countries, especially those which have a common border with an EU Member State, are considerably more developed than the eastern ones. This difference is due to the influence the EU border areas have. Obviously, they foster stronger growth in the western parts of the acceding countries due to cooperation across borders. These effects trickle down as they move eastward, leading to a gradient of development which slopes downward from west to the east.

The other pattern refers to the level of development in close proxy to urban areas. The closer the rural region is located to an urban centre, the higher the level of relative development. A decline in economic indicators can also be found as the distance increases to these urban areas.

5.1 Major achievements and challenges: a comparative picture

5.1.1 Physical infrastructure

Transport network

In most of the CEECs, the road network appears to be relatively well-developed as far as density is concerned, but it is of deteriorating quality and safety due to the lack of maintenance. As a result of the lower population density, in some countries the length of the roads in rural areas, measured per 1,000 inhabitants, is larger than the average for the country (e.g., Lithuania, or Latvia when Riga region is compared to the other regions, and Slovakia when Bratislava is compared to the rest of the regions). Some more acute problems appear in Romania, Hungary and Poland.

In Hungary, there are only 0.04 km of motorways, 2.8 km of asphalt roads and 0.2 km of other roads per 1,000 inhabitants. In comparison, the length of all roads in the EU-15 amounts to 13.7 km per 1,000 inhabitants. Insufficient road systems constrain labour mobility and the development of alternative sources of income in rural areas of the CEECs. Recent research under the EU FP5 IDARA project indicated that physical infrastructure is a real impediment to labour mobility in Hungary (CHAPLIN ET AL. 2002). For example, the region of *Kunszentmiklós* is located east of the Danube River, in the Great Hungarian Plain. Here, 20% of the roads in the region are unpaved. The public transport network is limited and the bridges crossing the Danube are far away, the nearest being 50 km. The bridges are often under repair, which impedes commuting. Although Budapest is not far as the crow flies, there are no major roads connecting this region to Budapest.

Poland is expected to experience a considerable increase in road traffic after accession. Yet, it still does not have a developed motorway system (only 0.01 km of motorways per 1,000 inhabitants) and there are no motorways integrated within the European transport system. From this point of view, however, Poland is not an exception. Several other countries, e.g., Bulgaria

and Lithuania, have 'E' roads, but they are not motorways. Continuing investments in motorways are planned in most of the CEECs. In the Czech Republic the existing network accounts only for one third of the planned target.

In most of the countries there are still unpaved roads, e.g., in Bulgaria in 2000, they accounted for around 3,000 km, or nearly 8%, of the length of all roads. The most severe problems with the road quality appear in rural Romania. Most communal roads have not been properly maintained and modernised and they do not have concrete surface.

Although Estonia has the densest road network amongst the CEECs, rural areas, and farms in particular, have deteriorating provisions. This is due to the so-called 'private roads' that have been established for centuries and were maintained by the state and collective farms under central planning. The 'private' roads include small farm roads connecting farms to the public road network. These are free access roads and each may serve several farmers. Due to the change in land ownership, the disappearance of the previous collectivised farms and the lack of funds, the network of 'private roads' has insufficient maintenance and raises a problem for farm access.

Some indicators of the transport infrastructure across the new Member States are presented in Table 5.1.

Table 5.1: Indicators of physical infrastructure per 1,000 inhabitants, 2001

	Km of railway lines [1)]	Km of double railway [2)]	Km of electrified railway [3)]	Km of motorways [4)]	Km of other roads [5)]	No of cars [6)]
Estonia	0.71	0.07	0.10	0.07	38.01	298
Latvia	0.99	0.12	0.11	0.00	24.26	215
Lithuania	0.51	0.15	0.03	0.11	20.23	316
Poland	0.58	0.23	0.31	0.01	9.65	258
Czech Republic	0.92	0.19	0.28	0.05	5.34	334
Slovakia	0.68	0.19	0.28	0.05	7.90	236
Hungary	0.78	0.13	0.26	0.04	2.95	223
Slovenia	0.60	0.17	0.25	0.22	9.95	444
Romania	0.49	0.13	0.18	0.01	3.27	132
Bulgaria	0.53	0.12	0.34	0.04	4.49	243

Notes: [1)] ROM, LV and H 1999; BG, CZ, LT, PL, SK and SLO 2000. [2)] ROM, H, LV 1999, BG, SLO, LT, PL 2000. [3)] ROM, H, LV 1999; BG, LT, PL, SLO, SK 2000. [4)] BG, H 1999, CZ, LT, PL, ROM, SK 2000. [5)] BG, H, LV, ROM 1999; CZ, LT, PL, SK 2000. [6)] H, LV, ROM 1999;BG, CZ, LT, PL, SK 2000.
Source: Authors' computations based on EUROSTAT's Newcronos Regio data.

Rail network

The rail network in CEECs is relatively dense, but lagging behind in terms of electrification of the lines and the length of double lines. The average length of railway lines in the EU-15 is 0.43 km per 1,000 inhabitants; almost twice as much as that of Poland, the CEE country with the most dense track system for trains. The maintenance of the existing railway is poor in these countries and the sector is de-capitalised. In Poland, self-transport, cars, has started to substitute for passenger rail travel, offsetting to some extent the effects of a decrease in rail connections and the closing down of some rail stations.

Communications

The traditional indicators of the number of fixed telephone lines per number of inhabitants or households has become less relevant with the spread of mobile phones. However, for internet connections, data exchanges and the development of e-commerce, fixed telephone lines and broadband lines are crucial. In general, most of the countries have above 300 telephone posts per 1,000 inhabitants, which provide a telephone connection to most of the households. The

only exception is Romania, with an underdeveloped telephone network of 182 posts per 1,000 inhabitants. Against this generally positive background, two problems arise. In some CEECs there is a large gap in the communication network between urban and rural areas. For example, in Latvia in 2000, there were 253 telephones per 1,000 inhabitants on average, but in rural areas there were only 65. Bulgaria exemplifies the other problem, namely the low efficiency of use of the rural telephone network. This country has one of the most dense telephone networks in rural areas. However, it is heavily underused because of the high prices of telecommunications and the economic efficiency of this network is therefore very low. The high, sometimes prohibitive, costs of telephone communications are a wide-spread problem. In Estonia, where 91% of rural households have a telephone, the service is so expensive that it has been identified as one of the constraints to rural entrepreneurship and rural tourism. Fixed line costs are about 10 times higher than mobile networks. On the other hand, with respect to data transfers, mobile phones still provide an inadequate service. In Estonia as a whole, internet is widely used but rural areas are seriously behind these developments.

As far as rural physical infrastructure is concerned, in all CEECs there are large differences between the more central settlements, located nearby rural towns, and the more peripheral areas. Whilst in most of the rural areas the first priority is the modernisation of the existing infrastructure, in the more remote areas density is also a problem.

5.1.2 Social and financial infrastructure

Improved social infrastructure, and particularly education, is central to improving job opportunities and incomes in rural areas. Generally, in many CEECs there are many schools in rural areas, but they are under-utilised due to decreasing population density (see section 4.2). In several countries, the social infrastructure is in decline in quantitative and qualitative terms. This is not only due to the lack of investments but also to the negative demographic trends, with high-aged rural population and the outflow of young people from rural areas. In Latvia, over the past years the number of nursery schools has decreased, and 10-15% of rural libraries and cultural clubs have closed down. In some countries, e.g., Poland, the quantitative decrease has brought about quality improvement. Education in rural Poland has been criticised due to the difficulties of recruiting well-trained teachers and the lower quality in comparison with the urban areas. Educational reform, aimed at improving the quality of the courses and lectures, reduced in number and concentrated on small rural schools. At present, there are on-going further institutional and organisational reforms with the objective of improving the efficiency and accessibility of public services, mainly health and education. Physical assets in many rural schools in Bulgaria and Romania are in bad condition due to under-investment.

One of the largest differences amongst CEECs is in financial infrastructure. Since little internal capital accumulation has taken place during the period of transition, most farmers lack the equity to invest in their farms and, therefore, need external sources of funds. Credit would appear to be an appropriate source. Yet, recent studies (e.g., COULOMB and DAVIDOVA 2003, DAVIDOVA ET AL. 2002; PETRICK and LATRUFFE 2003) show that CEE farmers often use very little credit from the banking system. This is generally due to two types of constraints to credit flows, namely 'internal' constraints, which result from lack of demand from within the farm system, and 'external' constraints, which result from factors outside the farm that impede access to credit. The overall situation arises as a result of both types of constraints. Some restrictions on the use of credit are internal to the farm enterprise and relate to the farmer's willingness to borrow. Credit demand is directly related to the utility of credit (BINSWANGER and SILLERS 1983). The cost of borrowing is increased if collateral is requested and if there are other applicant's transaction costs. A loan may, therefore, carry some disutility and if this is sufficiently high, farmers may cease borrowing altogether. One of the main reasons for disutility of credit is the farmers' transaction costs associated with borrowing: loan charges lev-

ied over and above the interest payments, the need for negotiations with someone outside the formal lending agency, the number of visits to the lender required before the loan is extended, the documentation required to support an application, the solicitation of bribes and other inducements (ADAMS and NEHMAN 1979, VON PISCHKE 1991). The high transaction costs are a major impediment to credit in the new Member States. A better developed and more efficient financial infrastructure can decrease these costs (see section 8.2, agricultural credit policies).

One of the best services, as far as rural branches are concerned, is in Poland where there is a relatively dense network of co-operative and other commercial banks that offer a wide range of services. Despite this, the use of agricultural credit by Polish farmers is very limited. There are a variety of reasons for this situation. Polish farms have low profitability; they are not efficient in terms of input use, particularly labour and capital; they face high borrowing costs, including interest rate and transaction costs (PETRICK ET AL. 2002, LATRUFFE ET AL. 2002, PETRICK and LATRUFFE 2003). Although the network of rural bank branches in Poland is quite dense, the existing farm structure deteriorates the farmers' access to credit. The bulk of farms have few assets, and old farmers produce predominantly for subsistence. Such farms face higher borrowing costs and are discouraged from taking loans (PETRICK and LATRUFFE 2003). On the other hand, by assessing this as an outcome of small-scale farming, the higher borrowing costs will push the structural adjustment of agriculture toward larger enterprises.

At the other end of the spectrum concerning the rural bank infrastructure is Romania, with very inadequate rural financial services. Romanian farmers use very little credit from the banking system. Collateral is a serious impediment to farmers' access to credit. Farmers experience problems in providing sufficient assets as collateral for bank loans; the use of farmland as collateral in Romania is very low. The land market is still quite thin due to the structural weaknesses of land ownership, fragmentation of ownership, incomplete titling, and poor registration (COULOMB and DAVIDOVA 2003). Only a few banks seem to accept future harvest as collateral. The high collateral to disbursement ratios imposed by banks is another major impediment.

Table 5.2 presents the country experts' opinion about the adequacy of physical, social and financial infrastructure in rural areas on a scale of 1 to 5, where 1 indicates adequate services and 5 strongly inadequate.

Table 5.2: Adequacy of the physical, social and financial infrastructure in rural areas in CEECs (country expert opinion, 1 = adequate to 5 strongly inadequate)

	1	2	3	4	5
Roads			BG, CZ, EST, LT, PL	LV, ROM, SK, SLO	H
Railway		SLO	BG, CZ, LV, ROM, SK	EST, H, PL	
Postal services		EST, LV, PL, ROM	SK	BG, CZ, H, LT, SLO	
Health services		EST	BG, LT, PL, SLO	CZ, LV, ROM, SK	H
Education			BG, EST, LV, PL, ROM, SK	CZ, SLO	H, LT
Financial services		EST, PL	SLO	BG, CZ, H, LT, LV, SK	ROM

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

The table shows that Estonian experts assess the infrastructure to be relatively adequate, with the exception of the railway, which is not so central in Estonia due to the short distances. On the other hand, in the opinion of the experts, rural Hungary has severe problems with the physical and social infrastructure. Latvia and Romania are also ranked very low regarding availability of education and financial services, respectively. Most of the expert ranking places the countries into average or one level below that. This is definitely inadequate for achieving balanced growth between rural and urban regions. Were this to happen, a down-

ward spiral could be set in motion. As a consequence, agriculture would also be severely affected by inadequate rural infrastructure. Finally, depopulation of the very remote areas may begin or continue, whatever the case may be.

5.1.3 Market infrastructure

The integration of agricultural markets must be improved in many countries, the relevance of which can be seen by the large share of subsistence farming in Romania, Bulgaria, and Poland (see chapter 3). This fact is largely due to lack, and/or the inappropriate design, of market institutions.

Some of the CEECs have quickly developed a relatively comprehensive market infrastructure. For example, in Estonia, in addition to the agricultural advisory system, there are various providers of business advice, including a wide range of producers' organisations. The institutional framework for regional policy is also developing according to needs. In 2001, the Estonian Regional Development Agency merged with Enterprise Estonia and is now a part of this wider organisation. The mission of Enterprise Estonia is to support Estonian enterprises by applying approved and effective public measures. The activities of Enterprise Estonia are based on co-operation between the Estonian Trade Promotion Agency, Estonian Technology Agency, Estonian Tourist Board, Estonian Regional Development Agency, Estonian Investment Agency, EAS Ida-Viru Agency and EAS South-Estonian Agency. At the sub-national level, the county governments are responsible for the co-ordination of sector policy activities (e.g., strategic planning, tourism and business development) and it is proposed to establish regional development agencies in target areas to stimulate local initiatives and administrative capacity. The government has launched a reform strategy for the regional state development agencies and two subsidiaries of the ERDA have been established in Northeastern and Southern Estonia. Contrary to this positive experience, market infrastructure in the Czech Republic is lagging behind, with under-developed or non-existent agricultural and business advisory networks.

As mentioned above, one way to improve rural human capital is by using outside expertise such as extension agents. Recent research of a sample of corporate and individual farms in 3 areas in Hungary, *Kunszentmiklós, Tapolca and Nyírbátor*, shows a large up-take of accountancy and agricultural advice (CHAPLIN ET AL. 2002) (see Table 5.3).

Table 5.3: Access to and use of advisory services in 3 rural areas in Hungary

	Access (%)	Use (%)
Agricultural extension or advice	87	61
Farm management training	49	10
Accountancy advice	90	89
Business advice	68	44
Information on rural development policies	63	45
Other	25	8

Source: CHAPLIN ET AL. (2002).

5.2 SWOT analysis

In this section the SWOT analysis of rural infrastructure provided by the country experts is discussed. As one might expect, strengths, weaknesses, opportunities and threats differ across the new Member States. Furthermore, sometimes certain conditions of rural infrastructure have even the opposite impact. What proves to be a strength or an opportunity in one country shows the opposite effect in another one. Nevertheless, some commonality is also found across the CEECs.

One should keep in mind that these assessments represent the view of the country experts. Hence, the diverse picture drawn may be partly influenced by the varying expert judgement of certain aspects.

Table 5.4 summarises the judgement of the country experts, which are presented in detail in the Tables A-5.1-10 in the annex. As a strength of rural infrastructure, tourism is the most mentioned by the experts. In some countries, this is supported by referring to the dense and good physical infrastructure (roads, railway tracks, communication system, as well as distribution of water and energy) available and necessary for allowing people to access the countryside as tourists. In addition, some country experts refer to banking, as well as the dominance of young people living in rural areas and their good basic education and ability to adjust.

In general, weaknesses dominate strengths in the SWOT analysis. Demographic development (see section 4.2), mentioned only as a strength in some countries, is seen to be a weakness in many others. Two aspects are important in this respect. One is the net outflow of population in many rural areas, especially those at the periphery. Another one is that the young, dynamic and better-educated ones leave. This leads to a brain drain of rural areas, with little chance for economic development once these processes are set into motion. It is not difficult to guess why the young people seek employment in urban areas, though it is not explicitly mentioned in the country assessments. Just by looking at what kind of weaknesses exist allow the picture to become obvious. The lack of off-farm jobs and too much reliance on farm income are forwarded as one reason. Deteriorating physical infrastructure is another aspect. Too little is invested to maintain its quality, to say nothing of improving it. Transportation systems (roads, railway tracks) and communication devices are especially mentioned. Also, health care worsens, as does the educational infrastructure in some countries. With regard to farming, insufficient banking possibilities and access to credit are listed, as well as lack of opportunities to get extension service and vocational training.

Certainly, there are many weaknesses which will not be easy to overcome; not the least because they all require more investment in rural areas. The countries have to choose how much money to allocate for rural development. It seems that these regions got too little attention in the past. However, the problems found do not necessarily imply that each remote region must receive equal attention. Maybe one has to acknowledge that some parts of the countryside will look differently in the future than in the past. Economic growth is likely to differ within a country as it does across countries.

Even though the country experts see many weaknesses, they also are very optimistic because of the many opportunities they refer to; EU accession seems to offer many of them. EU support through the various structural funds, especially through SAPARD, is the most important one. Participating in these programmes necessitates rural development planning, which some of the expert view as an opportunity. Obviously, some countries have considerably neglected the countryside. They did not even think about what could be done to improve its condition. An overall development strategy is missing.

According to the country experts, other opportunities are to create co-operatives for banking and insurance, to improve extension services and vocational training, as well as to diversify the rural economy by generating off-farm jobs (which may lead to an increase in part-time farming and less reliance on income from agriculture). All these opportunities, however, need to be considered as such and converted into a plan of action. Otherwise, they remain what they are right now; opportunities.

Going through the list of threats, one finds many aspects listed here which have already been mentioned as weaknesses. Obviously, the latter may lead to further deterioration if they are not overcome. Reference is made to the physical infrastructure and the small amount of

money it receives for being maintained. Also, the demographic trend described above is seen a threat. So too, are investments in measures to protect the environment, such as sewage systems. Finally, human capital is referred to from an additional point of view. Some country experts judge that entrepreneurs should be more risk-friendly and self-confident. Being risk-averse and lacking self-confidence impedes the way they run their business. A more aggressive attitude towards conducting business, so goes the claim, is necessary.

Table 5.4: **Synthesis of the SWOT analyses for the new Member States**

Strengths (+)	**Weaknesses (-)**
– relatively good physical infrastructure regarding the density of roads and/or railway network (EST, LV, LT, PL, CZ, BG) – modernisation of physical infrastructure under way (LV, CZ) – good potential for rural tourism, partly protected environmental areas (LT, PL, ROM, BG) – sufficient and reasonably well-skilled rural labour force (H, ROM) – good or quickly-growing extension and research facilities for the rural sector (PL, SK)	– demographic structure - mainly due to out-migration of (qualified) young people (LT, SLO, ROM, BG) – quality of physical infrastructure (EST, LV, CZ, SK, SLO, BG) – no access to credits and lack of investment (LT, H, ROM, BG) – low quality and/or poor access to education (LV, PL, SLO, BG) – lack of medical infrastructure (LV, SK, SLO, BG)
Opportunities ☺	**Threats ☻**
– improvement of infrastructure with EU funds/ programmes (LV, PL, CZ, SK, ROM, BG) – improvement of education and advisory system (EST, SK, SLO, BG) – improved communication system (EST, PL, H) – diversification of the rural economy, better access to credits and development of favourable investment conditions (LT, BG)	– further deterioration of the physical infrastructure, particularly public transport (EST, LV, PL, CZ, BG) – continuing lack of credits (LT, BG) – deteriorating demographic situation, out-migration of young and qualified people (EST, PL, SK, BG)

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

5.3 Conclusions

Most of the rural infrastructure in CEECs was built under central planning. During transition, due to the harder budget constraints at all levels, the maintenance of physical infrastructure has deteriorated and little has been done to improve the social infrastructure. However, the constraints are not only budgetary. The low and decreasing density of population in some rural areas, the out-migration of young people and the need to improve the quality of social services through concentration have made some rural areas worse off. The market infrastructure has developed in most of the CEECs, but it needs both growth and quality improvement. This is particularly the case of the agricultural advisory system, which must be able to provide complex advice to farm households; furthermore, these farm households must be treated as businesses, not merely as agricultural producers.

In general, a great deal of additional public investments are required for upgrading the rural infrastructure. Improved public infrastructure could pave the way for the establishment of complementary private services, which are to help relax rural unemployment.

6 DEVELOPMENTS IN THE AGRI-FOOD SECTOR WITH SPECIAL EMPHASIS ON QUALITY AND SANITARY ISSUES AND RESULTING EFFECTS ON RURAL AREAS

The food industry in the new Member States is now recovering from the sharp drop in output experienced during the early years of transition. However, EU accession implies new challenges of a similar dimension for the food processing sector. Access to finance for reinvestment and modernisation remains a problem for many food enterprises, thus making it difficult to meet EU food quality and hygiene standards. Possible consequences of this development might, in the short run, be a lack of competitiveness vis-à-vis imports on the domestic market, as well as difficulties exporting to EU markets. In the long run these enterprises will likely be forced out of business if, after integration, they are still not able to meet quality and sanitary standards as part of the *acquis communautaire*. The developments in the food industry will have repercussions for the whole of agribusiness. Thus, these changes are particularly important for the prosperity of rural areas, since primary production and some parts of food processing are located in the countryside. Thus, in this chapter the present situation and expected future changes in the food processing sector will be analysed to obtain a better picture on the induced consequences for rural areas.

The chapter is structured as follows: firstly, for the new Member States, a brief overview with respect to the implementation of the *acquis communautaire* by farmers and processors of animal products, as of spring 2003, will be provided (section 6.1). This includes a discussion of the success as well as the main enforcement problems in meeting EU quality and hygiene standards. Secondly, the situation, recent developments and the likely future development after EU accession in two main branches of the food industry – the dairy (section 6.2) and meat sectors (section 6.3) – are analysed. The dairy and meat sectors have been selected because they play a decisive role in food industry output and employment. In addition, the pressure for restructuring has been especially pronounced in these sectors prior to accession. Finally, because it is the area in the agriculture and food arena that faces, in most of the CEECs, the greatest pressure towards further adjustments after the accession date, we analyse the production and processing of animal products. The analysis of both branches covers structural issues such as the number and size of enterprises in the meat and dairy industry, as well as concentration ratios. Further, the conduct of food enterprises will be investigated, e.g., the application of the Hazard Analysis Critical Control Point (HACCP) System. In addition, several performance indicators are presented. This includes, e.g., information on revenue and gross value added, as well as on the percentage of production meeting quality requirements. Thirdly, a brief discussion of the relevance of food industry in rural areas is provided. Fourthly, based on the results obtained, the chapter identifies the main strengths, weaknesses, opportunities and threats for food processing (section 6.5) given EU accession.

6.1 Implementation of the *acquis communautaire* for animal products

Food safety is an integral part of the EU policy on consumer protection and health. Standards, e.g., for hygiene and control, food additives and food labelling serve to achieve a high level of food safety in the European Union. The EU therefore demands from the CEECs that following accession, EU standards for all food products – irrespective of whether they are destined for the domestic or export markets – must be adopted. The EU is not willing to take risks that might lead to lower food safety standards or to any danger for consumers. Thus, for the new Member States, compliance with the Union's *acquis communautaire* on food safety is essential. This is a significant challenge where progress has been made, but further steps still have to be accomplished, as indicated in Tables 6.1 to 6.6, which cover the main areas of the *acquis communautaire* in the field of animal products.

Based on the information of the country experts in almost all new Member States, a large part of the *acquis communautaire* in the animal sector has already been converted or is in the process of being converted to national regulations. Tables 6.1 to 6.6 reveal the progress the new Member States have made in adjusting national standards and rules to EU-legislation with respect to:

- health rules of the production and processing of dairy products (see Table 6.1),
- health rules of the production and processing of meat products (see Table 6.2),
- classification of meat (see Table 6.3),
- feed control (see Table 6.4),
- animal identification and registration system (see Table 6.5),
- BSE control (see Table 6.6).

Health rules of the production and processing of dairy products have been fully-adjusted to EU regulation in the three Baltic countries, as well as in the Czech Republic and Slovakia. In Hungary, those rules will be in force at the beginning of 2004. In the remaining countries, (Poland, Slovenia, Bulgaria and Romania) national legislation are so far only partly in compliance with EU legislation in the area of health rules of production and processing of dairy products. The situation is quite similar with respect to health rules of production and processing of meat products.

Especially in the area of enforcement of national legislation, deficiencies still exist in the CEECs. With respect to health rules of the production and processing of dairy and meat products, the experts state several enforcement problems (see Table 6.1 and Table 6.2); e.g., shortage of well-trained and qualified staff (Slovakia, Romania), the ineffective monitoring and/or penalty systems (Slovakia, Romania, Bulgaria), unclear divisions of authority and competence in the enforcement of the legislation (Slovenia). In addition, the huge investments necessary to adapt to EU standards in the meat and dairy sector are mentioned by several country experts (Lithuania, Poland, Czech Republic).

Table 6.1: Adjustment of health rules of production and processing of dairy products as of spring 2003

	Adjustment of national legislation	Control of fulfilling the regulation	Enforcement problems
Estonia	Yes, in 2000	Veterinary and Food Board [1]; control is satisfactory	No significant problems
Latvia	Yes, in November 2001	Food and Veterinary Service (FVS); control is effective	
Lithuania [2]	Yes, 2000-2003.	State food and veterinary service (SFVS); enforcement and monitoring of raw milk quality: National milk quality control laboratory; control is effective	Fragmentation of dairy herds, insufficient investment in measures improving hygiene and preserving quality of raw milk on small farms
Poland	Partly	Veterinary Inspectorate in co-operation with Sanitary Inspectorate and Trade Inspectorate; control is effective	Problems due to dynamic changes in regulation system High financial costs of adjustment and social implication in rural areas HACCP only in firms with more than 250 employees In particular, the delay in SAPARD contributed adversely to the process
Czech Republic	Yes, in 1996	Czech Veterinary Administration; control is effective	Investment costs
Slovakia	Yes, 2002, new Act on veterinary care (in force since 1.1.2003)	State Veterinary and Food Administration (SVFA); not really effective [3]	Too few well-trained staff; problems with effective monitoring; inadequate penalty system
Hungary	Yes, in January 2003, some rules will be in force from January 2004	Control by National Health Officer Service, corresponds to EU regulation	
Slovenia	Partly [4]	Responsibility of several institutions; control partly effective	Division of responsibility not clearly-defined and implemented
Romania	Partly	MAFF by DGAIA, MHF by General Division for public health [5]	Lack of a control infrastructure with suitable endowment and specialised staff
Bulgaria	Partly [6]	National Veterinary Service (NVC); control is effective	NVC is not very strict in enforcing the control as it is considered that the implementation of EU standards will need several years and substantial funds

Notes: [1] Veterinary and Food Board (VFB) supervises 1,340 food handling enterprises, including 826 enterprises handling food of non-animal origin that were transferred from the area of supervision of Health Protection Inspectorate. From 1 December 2000, supervision is organised in accordance with the provisions of the Food Act. [2] In Lithuania, 19 dairy plants meet all EU requirements, 18 will meet them by the date of accession, 2 will not meet them (have to be closed). [3] SVFA is a competent authority for official food control at the retail level of distribution and for all sectors of food industries. However, everyday practice is less encouraging. [4] For Slovenia, standards for the quality of purchased milk, but further improvements are still necessary in its implementation. [5] MAFF: Ministry of agriculture, food and forestry; DGAIA: General Department for Agriculture and Food Industry at the county level; MHF: Ministry of health's family; NSVA: national sanitary-veterinary agency. [6] For Bulgaria, it is expected that by the end of 2003, the health rules will be fully-adjusted.

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Table 6.2: Adjustment of health rules of production and processing of meat products as of spring 2003

	Adjustment of national legislation	Control of fulfilling the regulation	Enforcement problems
Estonia	Yes, in 2000	Veterinary and Food Board; control is satisfactory	No significant problems
Lativa	Yes, since 2001	Food and Veterinary Service (FVS); control is effective	
Lithuania [1)]	Partially, in 2002 (mainly slaughter and processing facilities. Not all of them comply with EU requirements)	SFVS (control and monitoring of enforcement); control is effective	Small-scale slaughter houses and processing facilities do not meet requirements, enforcement requires substantial investment. List of enterprises was drawn to specify the needs and indicate those enterprises which will have to be closed upon accession. The farm level is more problematic from enforcement point of view
Poland	Partly	Veterinary Inspectorate in co-operation with Sanitary Inspectorate and Trade Inspectorate; control is effective	Result from dynamic changes in regulations High financial costs of adjustment and social implication in rural areas HACCP only in firms with more than 250 employees In particular, the delay in SAPARD contributed adversely to the process
Czech Republic	Yes, in 1996	Czech Veterinary Administration; control is effective	Investment costs
Slovakia	Yes, 2002, new Act on veterinary care in force since 1.1.2003	Control by State Veterinary and Food Administration (SVFA); control is not really effective [2)]	Too few well-trained staff; problems with effective monitoring; inadequate penalty system
Hungary	May 2003, some rules from the date of accession	Control by HAAPC, self-control supervised by the local veterinary inspector corresponds to EU regulation	
Slovenia	Partly (quality classification)	Responsibility between more institutions; partly effective	Division of authority and competences not clearly-defined Ecological, veterinary and sanitary standards not always fulfilled
Romania	Partly	MAFF by DGAIA, NSVA, MHF by General Division for public health [3)]	
Bulgaria	Adjusted fully to EU standard	NVC; control is effective	NVC is not very strict on enforcing the control as it is considered that the implementation of EU standards will need several years and substantial funds

Notes: [1)] In Lithuanian meat industry, 21 plants meet all the EU requirements, 196 will meet them by the day of accession, 176 will not (have to close). [2)] MAFF – Ministry Agriculture, Food and Forestry; DGAIA – General Department for Agriculture and Food Industry, at county level; MHF – Ministry of Health's Family; NSVA – National Sanitary-Veterinary Agency. [3)] SVFA is a competent authority for official food control at the retail level of distribution and for all sectors of the food industries. However, everyday practice is less encouraging.

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

All countries except for Romania have adopted the EU classification system for meat (Table 6.3). In Bulgaria, the EU classification system will be implemented by the end of 2003, (for pork and sheep meat) and by the end of 2005 (for beef). In general, problems seem to be less prevalent in this area. The same holds for the legislation referring to feed control and the animal identification and registration system (see Table 6.3, Table 6.4 and Table 6.5).

Table 6.3: Adjustment of the classification of meat as of spring 2003

	Adjustment of national legislation	Control of fulfilling the regulation	Enforcement problems
Estonia	Yes, in 1999	Veterinary and Food Board; control is satisfactory	No significant problems
Latvia	Yes, in 2001 adopted EU requirements relating to the evaluation of meat quality (pork, cattle) and implemented in meat processing enterprises		
Lithuania	Yes, in 2002, 2003	SFVS	No big problems
Poland	Yes, obligatory EUROP classification has been introduced in 1993 in pork, and in 1999 in beef sector	Control partly–effective	Pork sector: the system is considered as an inherent element of the market process; it enabled an increase average lean meat content from 43% in 1993 to 50% in 2002 beef sector: problems originate from limited demand on domestic market for beef quality
Czech R.	Yes, in 2002	Control effective	
Slovakia	Yes	SVFA	
Hungary	Yes, in April 1998	Animal Health and Food Control Service, meat and milk control Inspection; control is satisfactory	No significant problems
Slovenia	Yes, in 2000 (particularly beef, and to a lesser extent pork, lamb and poultry)	International Superintendence Corporation, Consulting & Engineering (INSPECT), Ljubljana	Attention given to cattle/beef, to a lesser extent pork, lamb and poultry
Romania	No		
Bulgaria	EU classification of pork and sheep meat will be implemented by the end of 2003, beef meat by the end of 2005		

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Table 6.4: Adjustment of feed control as of spring 2003

	Adjustment of national legislation	Control of fulfilling the regulations	Enforcement problems
Estonia	Yes, in 1998	Control Centre of Plant Production based on Feeding stuffs Act; control is satisfactory	No significant problems
Latvia	Law on Animal Feeding Stuffs, a framework law aimed at transposing the bulk of the relevant EU legislation, is still pending.	Feed control is organised by FVS	
Lithuania	Yes, in 2002	SFVS, Plant Quarantine Inspection	No major problems for commercially- produced and marketed feed.
Poland	Yes, in 2002	Veterinary Inspectorate and Trade Inspectorate	
Czech R.	Yes	Control is effective	
Slovakia	Yes	SVFA	
Hungary	Yes, in September 1996	Animal Health and Food Control Service	
Slovenia	Partly (adjusted standards regarding the content of animal feed are in a phase of implementation)	Several institutions: Agricultural inspection; Sanitary inspection;	
Romania	No		
Bulgaria	Fully-adjusted	NVC for safety of forages. National service of grain, grain products and forages for quality of feed.	

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Table 6.5: Adjustment of animal identification and registration system as of spring 2003

	Adjustment of national legislation	Control of fulfilling the regulations	Enforcement problems
Estonia	Yes	Agricultural Registers and Information Board	No significant problems
Latvia	For cattle, completed. For pigs, sheep and goats remains to be finalised directly to EC requirements.		
Lithuania	Yes, to be completed by 2004	SFVS	No major problems.
Poland	Yes, in 2002	Veterinary Inspectorate and ARMA; control is effective	Most components of the system are in place; distribution of passports for cattle is to be accomplished by mid-2003
Czech Republic	Partly		Administrative capacity is insufficient
Slovakia	Yes	SVFA	High cost of implementation
Hungary	Yes, in November 2002, some rules until accession	National Agricultural Quality Testing Institute (OMMI)	
Slovenia	Yes, in 2002	Yes (Ministry of Agriculture, Forestry and Food)	It is implemented for cattle.
Romania	Partly		
Bulgaria	Partly (adjusted, for cattle and sheep)		

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

All new Member States have implemented measures to manage the risk of BSE (see Table 6.6) and have agreed to comply with all respective EU legislation at the time of accession.

This includes active BSE surveillance, removal of specified risk materials from the food chain at slaughter, the effective implementation of feed bans and of systems for the identification of cattle and bovine products. However, in most CEECs, the very high costs, e.g., of testing for BSE, are a major problem in fully-enforcing the EU legislation.

In conclusion, one can say that there is still a lot to do in the CEECs as far as the question of food safety is concerned. Although the countries have already succeeded to a considerable extent in implementing the *acquis communautaire* at the national level, efforts are still needed to achieve full compliance with present EU legislation. In addition, shortcomings seem to be prevalent, especially in the enforcement of the rules. The kind of enforcement problems, as well as their magnitude, differ between the new Member States and with respect to the legislation. The situation in the area of food safety is especially difficult for the CEECs since the *acquis communautaire* in this area is a fast-moving target. Thus, it can be expected that food safety requirements in the EU will even further increase in the near future, leading to continuous adjustment pressure in the new Member States.

Table 6.6: Adjustment of BSE control as of spring 2003

	Adjustment of national legislation	Control of fulfilling the regulations	Enforcement problems
Estonia	Yes	Based on Veterinary Activities Organization Act, Animal Disease Control Act, and Veterinary and Food Board	No significant problems
Latvia	Adopted legislation concerning eradication and elimination procedures, prevention and combat of diseases and working conditions for veterinary examinations. Latvia has joined the Animal Disease Notifications System	FVS; BSE-related measures implemented and routine testing began on a small scale (as of June 2001, 800 cows had been checked, while the FVS was planned to test a total of 1,800 by the end of 2001).	
Lithuania	Yes, in 2001	SFVS	Lack of financial resources.
Poland	Yes, in 2001	Veterinary Inspectorate; effective	Legal and real adjustments in this area have been given priority
Czech R.	Yes	Yes	Costs
Slovakia	Yes	SVFA	High cost of monitoring and testing
Hungary	Yes, in May 1995	Obligation to report	
Slovenia	Yes, in 2002	Yes (Main authority is on Veterinary services)	Three cases of BSE have been identified so far. The control and implementation systems are in a need of further improvements.
Romania	The instructions regarding BSE control and the standards for quick tests of BSE, No. 144/2002, have been evaluated.		
Bulgaria	Strict control	NVC	

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

6.2 Situation and development of the dairy sector

6.2.1 Relevance of the dairy sector

The dairy industry plays an important role in most of the new Member States, although the relative magnitude varies from country to country. The share of the dairy sector in output of

the food industry in 2000 ranged between 6.8% in Romania and 26.1% in Estonia. Because milk processing requires an intensive use of raw material and offers little possibility for value adding, the dairy sector's share in food industry gross value added tends to be smaller than these figures (see Table 6.7). Table 6.7 also provides information on the employment share of the dairy sector within the food industry. Taking this indicator of importance into account, milk processing offers employment to relatively many persons in the Baltic countries, reaching as much as 24% of total employment in the food sector in Lithuania in 2000.

Table 6.7: Relevance of the Dairy Sector in Total Food Industry Output, Value Added and Employment in the CEE Candidate Countries, 2000

	Output share (%)	Share of Gross Value Added (%)	Employment Share (%)
Estonia	26.1	25.3	15.9
Latvia	19.8	19.7	17.8
Lithuania	25.9	n.a.	23.7
Poland	15.6	n.a.	15.3
Czech Republic	16.1	9.6	10.3
Slovakia	15.6	9.6	9.5
Hungary	12.6	5.6	7.7
Slovenia	14.4	7.9	8.4
Romania	6.8	6.1	8.7
Bulgaria	11.5	4.3	7.4

Source: EUROPEAN COMMISSION-DIRECTORATE GENERAL FOR AGRICULTURE [NETWORK OF INDEPENDENT AGRICULTURAL EXPERTS IN THE CEE CANDIDATE COUNTRIES] (2003).

6.2.2 Milk production and delivery to dairies

In the CEECs, 38.9 million tons of cow milk were produced in 1989 (see Table 6.8). Over the last decade, production has declined sharply. This development has been primarily the result of the removal of price supports that had been granted to milk producers prior to 1989, as well as of rising input costs for farmers. The strongest decline occurred between 1990 and 1993. Since then, production has more or less stabilised at the lower level (HARTMANN 2001).

Table 6.8 reveals that producers' deliveries to dairies declined even steeper than did milk production in the CEECs. In 1999, an average of just 57% of milk production was delivered to dairies. This is a rather low percentage as compared with 95% in both Germany and the EU-15. Even in the most recent years for which information has been available, the share of milk delivered to dairies amounts to only about 59% on average (see Table 6.9). This share varies considerably among the new Member States, reaching its lowest level of 15% in Romania. The delivery share is, however, also very low in Bulgaria (25-30%) and Latvia (48%), and reaches only a medium level in Estonia (62%), Poland (63%), Lithuania (67%) and Slovenia (71%). The highest processing shares are calculated for the Czech Republic (93%), Slovakia (87%) and Hungary (80%). The variation in these shares across these countries resembles, to a large extent, their divergent structures in dairy farms. While in the Czech Republic, Slovakia and Hungary, milk is produced on farms with relatively large average herd sizes, the dairy farm structure in countries such as Latvia, Lithuania, Poland, Romania and Bulgaria is characterised by a large share of small holdings with only a few cows each. In the latter, milk production is often subsistence-oriented. In addition, small dairy farmers find it difficult to comply with stricter regulations on milk quality and hygienic standards introduced in most countries over the last years. This has forced an increase in sales of milk through less formal channels.

Table 6.8: Cow milk production and share of production delivered to dairies in the CEE candidate countries, Germany and the EU-15 in 1999 and relative to 1989 [1)]

	Cow milk production		Share of milk production delivered to dairies	
	1999 in 1000 t	1989 = 100	1999 in %	1991=100
Estonia	644	50.4	62.7	n.a.
Latvia	799	40.4	48.8	55.9
Lithuania	1,765	54.6	68.4	77.1
Poland	12,116	73.8	54.8	76.8
Czech Republic	2,736	54.8	87.2	102.2
Slovakia	1,073	52.2	87.2	99.4
Hungary	2,011	70.3	80.6	96.3
Slovenia	644	107.2	67.5	n.a.
Romania	5,100	153.5	22.0	n.a.
Bulgaria	1,366	64.0	55.6	63.2
CEEC-10	28,254	72.7	56.7	n.a.
Germany	28,400	97.7	95.0	104.5
EU-15	121,929	99.1	94.5	102.8

Note: [1)] Due to a lack of data for all countries but Poland, the comparison with respect to the delivery share is made relative to 1991. Only for Poland is the year 1989 again used as a benchmark. Due to the different sources used to put this table together, the numbers, especially with respect to the delivery quota, have to considered with care.

Source: Authors' calculations based on EUROPEAN COMMISSION (DIRECTORATE FOR AGRICULTURE, DG VI) (1998, p. 37), ZMP (ZENTRALE MARKT- UND PREISBERICHTSSTELLE) (various years), ZMP (ZENTRALE MARKT- UND PREISBERICHTSSTELLE) 2001, AGRA EUROPE (1999, p. 12).

For Poland, the Czech Republic, Slovakia, Hungary, Slovenia, and Bulgaria, the country experts (see Table 6.9) indicate that the delivery share has increased in recent years. An opposite development occurred in Estonia and Romania, while in Latvia and Lithuania neither a clear upside nor a definite downside trend could be detected. With EU membership, a rise in the delivery share is expected for all countries except for Romania.

Developments in the agricultural sector significantly affected the food processing sector. This also holds for milk processing. The decline in milk production has considerably reduced raw material availability for dairy plants and has thus been a major reason for the low capacity utilisation in this sector (see Table 6.11). This situation was aggravated by the decline in delivery share.

Another aspect with relevance for the food processing sector is the quality of the raw product. The quality of dairy products crucially depends on the quality of the milk. Low raw material quality raises the costs for thermic treatment in the processing process, leads to an increase in the input/output ratio and thus to higher input costs, and also reduces the options with respect to the kind of dairy products that can be produced. In most of the CEECs, a considerable share of the milk reaching the dairy plants does not fulfil EU standards (see Table 6.9). In Latvia, in 2002 (2001), only about 64% (50%) of the milk delivered to dairy plants was in compliance with EU quality requirements. This share amounts to 70% in Poland, and reaches 80% in Lithuania, 86% in Slovenia, 87% in Estonia, 92% in the Czech Republic and 97% in Slovakia, respectively. No information was provided by the country experts on this issue for Hungary, Romania and Bulgaria. While in Hungary, it can be expected that about 85% to 90% of milk delivered to dairy plants is in compliance with EU quality requirements, the situation is quite different for the latter two countries. At the end of the 1990s, it was estimated that the bacteria content of the milk was about 3 to 4 times higher than allowed in the EU. The major-

ity of the milk is collected from farmers without adequate cooling equipment. The situation is similar in Romania. This may be explained by the fact that farmers do not get paid for better quality, partly because the milk collectors have no laboratories to check quality. Thus, there is little incentive for farmers to invest in appropriate milking and cooling equipment (HARTMANN 2001).

In most new Member States, however, the situation has improved over the last few years with respect to the quality of raw milk delivered to dairies. Also for the future in the EU, the country experts expect that raw milk quality will further improve in all countries except for Romania (see Table 6.9)

An additional severe shortcoming for the competitiveness of the dairy sector is the small average herd sizes found in Latvia, Lithuania, Poland, Slovenia, Romania and Bulgaria. This leads to high expenses for collecting the milk from agricultural producers, which is a considerable cost factor for dairies in these countries (cf. WISSENSCHAFTLICHER BEIRAT BEIM BMELF 2000, pp. 66-67). This also explains why, especially in those countries, a relatively high share of milk is still collected through collection centres. In the future this share will, however, very likely further decline.

Table 6.9: Quantity and quality of milk delivered to dairy plants: situation, recent development and expected future changes

	Presence/Past/ Future [1)]	Estonia	Latvia	Lithuania	Poland	Czech R.	Slovakia	Hungary	Slovenia	Romania	Bulgaria
	Year: Present Situation	2001	2001	2001	2002	2002	2002	n.a.	2000	2001	2000
Milk delivered to dairy plants in mill. tons	Present situation	428	403	1,153	7,423	2,636	1,034.6	1,674	438	650	374
	Past development	+	+ (398 in 2000, 390 in 1999)	Declined to 2000, then increased	+	+	+	+	+	-	+
	Future development	+		(+)	+	+	0	+	0	0	+
Share of milk delivered to dairy plants in % of total milk produced	Present situation	62	48	67	63	93	87	80	71	15	25 - 30
	Past development	-	0	Declined to 2000, then increased	+	+	+	+	+	-	+
	Future development	+	+	(+)	+	+	+	+	+	0	+
Share (in %) of milk delivered to dairy plants that is in compliance with EU quality requirements (e.g., somatic cell count, plate count)	Present situation	87	49 (~64 in 2002)	80	ca. 70	92	97	n.a.	86	n.a.	n.a.
	Past development	+ 1999: 79 2000: 83	+ 1999: 31 2000: 41	+	+	+	+	+	+	n.a.	+
	Future development	+	+ (2006: 80-90)	(+)	+	+	+	+	+	0	+
Share (in %) of milk delivered which is collected directly on farms	Present situation	100	No precise data (~60)	10-15	ca. 60	n.a. (common)	Very close to 100	92	25	n.a.	88
	Past development	-	+	-	+	n.a.	0	+	+	n.a.	0
	Future development	+	+	(0)	+	n.a.	-	+	+	n.a.	n.a.
Share (in %) of milk assembled through collection centres	Present situation	0	No precise data (~40)	85-90	ca. 40	n.a. (not common)	Very close to 0	8	75	n.a.	12
	Past development	0	-	+	-	n.a.	0	-	0	n.a.	0
	Future development	0	-	(+)	-	n.a.	+	-	-	n.a.	n.a.

Note: [1)] Present situation refers to the year indicated in line 2; past (future) development refers to the last three years (the first three years after accession). The signs indicate whether there has been (is expected to be) an increase (+), decrease (-) or no change (0) in the values/shares over the past (in the future).

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

6.2.3 Structural issues in the dairy sector

Following the decentralisation and privatisation of the dairy sector, the number of enterprises increased considerably in the beginning of the 1990s in all CEECs (HARTMANN 2001). However, recent years showed, in all but two countries, a partial reversal of this trend. Only in Slovakia and Slovenia did the number of dairy firms not decline but remained stable in recent years (see Table 6.10). Along with the number of enterprises, the number of employees in the sector also declined in almost all countries. For the future, the experts predict a further reduction in the number of enterprises and employees in the dairy sector (see Table 6.10).

In terms of the trends in concentration measured by the Concentration Ratios, CR 4[8], the results in Table 6.10 clearly hint at an increasing concentration in recent years, a development which also can be observed in Western countries. This development can be seen as a reasonable entrepreneurial measure to adjust to market conditions; e.g., if economies of scale are realised through mergers or acquisitions, dairy products can be produced at lower costs and thus the price competitiveness of the dairy sectors in the new Member States might be strengthened. The concentration process in the dairy sector very likely will also generate more foreign investments, since large entities are more attractive to investors.

However, horizontal concentration processes always imply the risk of restricting competition. At this stage of the restructuring process, it is difficult to arrive at any conclusion of whether the horizontal integration processes observed are endangering competition. The number of enterprises in these mostly relatively small countries can still be considered as high. Compared to their Western competitors, those enterprises are very small; e.g., average revenue per enterprise is, in all countries but the Czech Republic, much less than 10% (2%) of the level of their competitors in Germany (The Netherlands). Thus, to be able to compete in the EU market and reap the benefits of larger enterprise sizes as discussed above, a further concentration process can be expected in the future. This development is also foreseen by the experts of the respective countries.

This trend is very likely to be accelerated by three developments: First and foremost, to adjust to EU hygiene and quality standards and to withstand competition in the European context, high investments are a precondition for the dairy industry in the new Member States. However, small enterprises lack the financial means to realise such investments. Secondly, capital-rich foreign investors increasingly enter the dairy market in the new Member States, and as the experience, for instance in Hungary, shows, will foster the concentration processes. Thirdly, the merging of firms in the retail and wholesale sector, which can be observed in most of the CEE new Member States, will also force larger units in dairy processing (cf. WEINDLMAIER 1998, p. 57 and 2000, p. 10, SZABO 2001).

[8] The CR 4 is defined as the sales of the 4 largest enterprises in the sector relative to the total sales of the sector.

Table 6.10: Situation, recent development and expected future changes in the dairy sector: structural issues

	Presence/Past/ Future [1]	Estonia	Latvia	Lithuania	Poland	Czech Republic	Slovakia	Hungary	Slovenia	Romania	Bulgaria
Year		2001	2001	2001	2002	2002	2002		2000	2001	2000
Number of dairy plants	Present situation	38	65 dairies (& 21 milk collecting centres)	37	254 (with at least 50 employees) 333 (with at least 10 empl.)	78	68 (o.w. 37 > 2000 t, 31 500 – 2,000t)	122	20	831	445
	Past development	-	- (65 dairies & 23 milk collecting centres)	-	-	-	0	-	0	-	-
	Future development	-	- [2]	(-)	-	-	0	-	-	-	-
Number of employees	Present situation	2,760	approximately 5,900 (17.8% of total employees in food sector)	8,577	48,100 (2001 data, for enterprises with at least 50 employees)	13,037	n.a.	9,284	1,753	17,688	3,400
	Past development	-	(0)	-	-	-	n.a.	-	-	-	-
	Future development	-	-	(-)	-	-	n.a.	-	-	-	-
Revenue/ enterprise	Present situation (million EUR)	4.3	2.2	9.4	12.5	20.5	5.3	7.2	13.5	0.3	0.5
Concentration ratio (CR 4 in %)	Present situation	46	59	64 (Jan-Jun 2000)	ca. 15	40 estimate	CR3: 34; CR10: 70	45	85	42	n.a.
	Past development	+	+ (55 in 1999)	+	+	+	+	+	+	n.a.	+
	Future development	+	+	(+)	+	+	n.a.	+	+	n.a.	+

Notes: [1] Present situation refers to the year indicated in line 2; past (future) development refers to the last three years (the first three years after accession). The signs indicate whether there has been (is expected to be) an increase (+), decrease (-) or no change (0) in the values/shares over the past (in the future). [2] Number of milk processing plants in compliance with EU standards is estimated to be 20 in 2006.

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

6.2.4 Conduct and performance in the dairy sector

In order to assess the conduct and performance of the dairy sector, several indicators will be analysed. The most commonly-used quantitative indicators for measuring and comparing the financial performance of enterprises or sectors in one country, or between countries, are either net or gross profit as a percentage of sales, called net income ratio and gross income ratio, respectively. However, this information was not available across countries. Thus, to obtain a first idea on performance over time, the development of total revenue is assessed. Table 6.11 reveals that with respect to this indicator, the changes over recent years have not been unified. Total revenue increased in Estonia, Lithuania, Poland, Slovakia and Hungary. No change can be observed over recent years for Slovenia and Romania, while Latvia and Bulgaria had even to cope with a decline in total revenue of the dairy sector. For the future after accession, the experts predict that all countries but Slovenia and Bulgaria will experience an increase in their revenues. Gross value added is certainly a better indicator to analyse the performance of an enterprise or sector. With respect to this indicator, most countries have experienced positive development over the last three years. Exceptions are Slovenia, where gross value added declined, and Romania, where it remained constant. The outlook with respect to this indicator is rather positive. Only for Slovenia did the experts predict a decline in gross value added in the dairy industry (see Table 6.11).

One factor likely to affect the industry's performance to a considerable extent is the level of capacity utilisation. Due to the much-reduced milk delivery rate, there has been a noticeable decline in the utilisation of processing capacities (cf. Section 6.2.2). Unfortunately, data could not be provided by the country experts for Poland, Romania and Bulgaria. Taking other sources in consideration, it seems, however, that this problem is especially severe in Bulgaria and Romania, where in 2000 excess capacities amounted to about 70% to 80% (HARTMANN 2001, HOCKMANN 2003). In Poland, processing capacities are used in the range of 30% to 60%, depending on the kind of the dairy product manufactured and the season, thus leaving 40% to 70% of the production potential unused. The utilisation rate is considerably better for high value products such as yoghurts and cheeses compared to butter. The same observation can also be made for other CEECs (e.g., Estonia, Slovakia; see Table 6.11). A medium-level of capacity utilisation, between 60% and 70%, is achieved in Estonia (59%), Latvia (62%), Slovakia (65%), and Hungary (68%), while excess capacities are small to negligible in the Czech Republic (20%), Slovenia (10%) and Lithuania (0%). Excess capacities lead to an increase in the fixed costs per output unit and thus hamper the competitiveness of the dairies in the new Member States on domestic and international markets.[9]

The quality of the raw product, as well as of the processed products, are crucial for the ability of the dairies to survive after accession to the EU. Since only enterprises that comply with EU hygienic and veterinary standards are granted a licence to the EU, the possession of such a licence can be regarded as a "quality" indicator of production. Table 6.11 reveals that the share of the enterprises which have a license to export to the EU varies considerably between the new Member States. While in Lithuania more than 50% of all enterprises have a licence to export to the EU, this share amounts to only 1% in Romania and 2% in Bulgaria, respectively.

[9] It should be noted that definitional problems may complicate the interpretation and comparison of these figures, in that some countries may report obsolete capacity, which in other countries has been removed through bankruptcy and closure.

Table 6.11: Situation, recent development and expected future changes in the dairy sector: performance and conduct issues

	Presence/Past/ Future [1]	Estonia	Latvia	Lithuania	Poland	Czech R.	Slovakia	Hungary	Slovenia	Romania	Bulgaria
Year				2001	2002	2002	2002		2000	2001	2000
Total revenue of the dairy sector (in mill. EUR)	Present situation	163 (2000 data)	140 (2001 data)	349	3,180	1,600	363 (2001 data)	881	270	257	213
	Past development	+	- (147 in 1997, 153 in 1998)	+ except for 2002	+	n.a.	+	+	0	0	-
	Future development	+	+	(+)	+	+	n.a.	+	0	+	-
Gross value added (in mill. EUR)	Present situation	25 (2000)	34 (2001)	28	n.a.	145	44 (2001)	580	42	54	18
	Past development	+	+ (20 in 2000)	+	+	n.a.	+	+	-	0	+
	Future development	+	+	(+)	+	+	n.a.	+	-	+	+
Excess capacity in % total capacity of the plants (average over all plants) [2]	Present situation	2001: 41 Cheese: 20 SMP: 25 Butter: 37	38	0	n.a.	20	Average: 35 Cheese 10-20, SMP 40-50,	32	10	n.a.	n.a
	Past development	-	0	n.a.	n.a.	+	-	-	0	n.a.	+
	Future development	-	-	0	n.a.	+	-	-	0	-	+
Number (share) of enterprises that have a license to export to the EU	Present situation	7 (18%)	8 [3] (12%)	19 [4] (51%)	38 (15%)	26 (33%)	18 (26%)	n.a.	5 (25%)	12 (1%)	9 (2%)
% of production that satisfies crite-ria for export to the EU	Present situation	SMP: 100 Butter: 67 Cheese: 78	Butter: 37 cheese: 11 other milk p.:13 casein: 100 [5]	80	ca. 35	50	23 (estimation: end of 2003 about 95%)	n.a.	75	n.a.	10-12
% of enterprises that apply HACCP System	Present situation	n.a.	48	70; the rest are in the process	ca. 40	100	9	Almost 100	80	In stage of imple-mentation	n.a.

Notes: [1] Present situation refers to the year indicated in line 2; past (future) development refers to the last three years (the first three years after accession). The signs indicate whether there has been (is expected to be) an increase (+), decrease (-) or no change (0) in the values/shares over the past (in the future). [2] It is considered that if capacity utilisation is 100% in the summer season and 55% in the winter season, excess capacity is 0%. [3] 15 enterprises have temporary admission from the Food and Veterinary Service to export dairy products to non-member countries. [4] 19 plants meet all EU requirements, 18 will meet them by the date of accession, 2 will not meet them (have to be closed). [5] Percentage refers to exported dairy products to EU in % of total production.

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

These numbers provide a first indication, with respect to the share, of enterprises that were already able to produce under EU regulations in 2001 and 2002. In addition, it seems relevant to obtain the share of production that satisfies the criteria for export to the EU. It can be assumed that this share is much higher since, in general, the bigger enterprises have a licence to export to the EU. Indeed, in Estonia, Lithuania and Slovenia, about 75% to 80% of dairy production is in compliance with EU regulations. In Poland, Latvia and Bulgaria, this share is much smaller, indicating the tremendous adjustments that are forthcoming. No information was available with respect to Hungary and Romania. While it can be expected that the dairy sector in Hungary complies, to a large extent, with EU regulations, this positive assessment does not hold for Romania.

The implementation of quality controls corresponding to the Hazard Analysis and Critical Control Points (HACCP) principles is a further indication whether enterprises are oriented towards the production of high quality and safe products. Table 6.11 indicates that, with respect to this indicator, the situation is also quite heterogeneous in the different new Member States. While in the Czech Republic and Hungary, all dairy plants have already implemented the HACCP principle, there is at present no enterprise in Romania applying this system.

6.2.5 Compliance with EU standards in the dairy sector

The commitments with respect to the full application of the *acquis communautaire* in the dairy sector are huge. The new Member States had the possibility to request specific transition periods for some of their enterprises. As Table 6.12 reveals, several CEECs have made use of this possibility, since by the time of accession not all enterprises will have accomplished the required conversion. The main problems in complying with EU standards in the dairy sector are seen in the area of applying hygiene and veterinary standards and environmental regulations. The upgrading of an establishment to be in compliance with the *acquis communautaire* requires huge investments. This holds true, especially given the outdated technology and equipment, in many enterprises in the CEECs. However, a lack of own resources and restricted access to credits limit the modernisation process. In addition, several country experts mention the quality of raw and processed products as a major reason for not being able to comply to EU-standards (see Table 6.12).

The costs of upgrading the dairy sector to EU norms is tremendous in most of the CEECs as Table 6.12 reveals; e.g., in Latvia, these costs amount to about 20% of gross value added. Although support is provided under the SAPARD and national programmes, the burdens for the enterprises are still considerable. Many enterprises will not be able to bear the costs. It is estimated that in several new Member States, a high share of the presently-existing enterprises will not be able to satisfy EU standards in the future, and even more will not be able to survive competition from the EU. However, it seems to be primarily the smaller firms that will have to close down, e.g., while the country experts estimate that about 60% of the existing enterprises in the Czech Republic will not be able to withstand EU competition, their share in total capacity amounts to only 20% (see Table 6.12). Despite the closure of many dairies, production is not expected to decline since, e.g., excess capacities in the remaining enterprises will be utilised. In general, this development will accelerate the concentration process in the dairy sector of the new Member States.

The regional consequences of these developments are quite heterogeneous between the countries. While in Latvia, Slovakia and Slovenia, most of the enterprises that will have to close down are located in rural areas, the opposite holds for Estonia and Romania. No clear regional pattern with respect to this issue can be detected for Lithuania and Poland. For the other countries, no information was available with respect to the regional distribution of enterprise closures.

Table 6.12: Compliance with EU-standards in the dairy sector

	Estonia	Latvia	Lithuania	Poland	Czech R.	Slovakia	Hungary	Slovenia	Romania	Bulgaria
Number of plants (and share in total capacities) which applied for transitional agreements	33 (87 %) data refer to 2001	11	n.a.	113 (ca.10-15%)	72	no plant applied for transitional agreements	n.a.	Less than 30% (about 20% of total capacity)	n.a.	9
Main reasons for enterprises not being able to comply with EU-standards (e.g. veterinary, hygiene, environmental)	Lack of investments	Outdated equipment and technology; quality and packaging of products; quality of processing facilities; Environmental problems, e.g., waste water treatment	Environment	High investments to be made in short time	Hygiene standards (investments)	n.a.	n.a.	Hygiene and veterinary standards	Sanitary veterinary rules; hygiene; quality of products	Hygiene and veterinary standards; investments; low quality of the raw milk
Estimated costs of complying with EU-standards (mill. EUR)	230 (2001 data)	7-8 p.a.	n.a.	ca. 600 (estimates in 1999 for milk processing)	7.8 p.a. until 2004	20 in 2000-2003; 17 in 2004-2006	n.a.	n.a.	n.a.	50-60
Does the government support introducing the *acquis* in the food processing industry and in food marketing?	Only in the frame of SAPARD co-financing	For technological modernisation of dairy farms (milking equipment, coolers, etc.); for milk enterprises (facilities and milk quality); total amounts in EUR 7.25 mill. provided [1)]	Under SAPARD. Program is under implementation	Mainly interest rate subsidy on investment credits; support for all sorts of adjustments necessary to improve efficiency and competitiveness and to comply with standards	Total funds for the food sector: EUR 7.9 mill. provided in 2002	There is no special programme to support adjusting to the *acquis* for dairies	There is a national program to implement the *acquis*	In the area of hygiene	Actions of endorsing the *acquis* in controlling food safety, hygiene, animal health, building up institutional capacities	Most important part of government policy for agriculture is to support introducing the *acquis*; EUR >2 mill. for livestock sector
Is SAPARD used to support introducing the *acquis* in the food processing industry and in food marketing?	For equipment, environmental measures; SAPARD: EUR 8.34 mill. (2000-2006)	Increasing the share of processed raw materials, improving quality and hygiene standards, modernisation of equipment, buildings, waste technology, quality control system, development of marketing of processing enterprises etc.; SAPARD: EUR >1 mill.	All sectors of food industry and marketing	Adjustment of milk processing to *acquis* (veterinary, hygiene, environmental standards etc.) represents major priority of SAPARD in PL; funds ca. 15% (ca. EUR 32 mill. yearly), during program operation	For the whole food sector: EUR 0.78 mill. provided by SAPARD	Yes	Yes	Yes, on project basis	16 projects for milk and dairy are submitted	Investments in farms; improvement of processing and marketing and in diversification of activities in rural areas

	Estonia	Latvia	Lithuania	Poland	Czech R.	Slovakia	Hungary	Slovenia	Romania	Bulgaria
Estimated share of enterprises (number and production capacity) that will have to close down because of not being able to comply to EU standards	50% of enterprises, 8% of capacity	More than 50% of enterprises, less than 40% of capacity	none	84 enterprises (ca. 25% of enterprises and ca. 10% capacity)	12%	none	High share of enterprises, small part of capacity (up to 20%)	5% of enterprises, 3% of capacity	20% of enterprises	35-40% of enterprises, 20-30% of capacity
Estimated share of enterprises (in number and production capacity) that will have to close down because of not being able to withstand EU-competition	50% of enterprises, 8% of capacity	n.a.	none	ca. 0 – 10%	60% of enterprises, less than 20% of capacity	29 enterprises 17.5% of capacity	Due to small size of companies an accelerated concentration process can be expected	10% of enterprises, 5% of capacity	25%	35-40 % of enterprises, 20-30% of capacity; production primarily for the local market
Regional distribution with respect to enterprises that will have to close down	Mainly in urban areas 91%	Primarily rural enterprises will have to close down (up to 50%)	No regional pattern	No clear regional pattern	n.a.	rural	n.a.	Primarily smaller enterprises closely connected with rural areas	In urban area	n.a.

Note: [1)] The annual financing agreement for 2001 was signed in February 2002 and entered into force in June 2002. Prior to June, the SAPARD agency received 444 project applications from potential beneficiaries. Of these, 219 have been approved, involving around EUR 10.4 million of public support.

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

6.3 Situation and development of the meat sector

The developments in the meat sector have been very similar to those in the dairy sector. Thus, the discussion of the results presented in the following tables can be much less detailed.

6.3.1 Relevance of the meat sector

The meat sector is of similar importance as the dairy sector in the new Member States. In 2000, the share of the former in food industry output ranged between 11.3% in Lithuania and 25.3% in Hungary. Except for Estonia, the meat sector's share in food industry gross value added tended to be smaller than these figures (see Table 6.13). Table 6.13 also provides information on the employment share of the sector within the food industry. Taking this indicator into account, meat processing offers employment to relatively numerous persons in Hungary (29%), followed by Poland (25%). These shares are lowest in Estonia, Latvia and Bulgaria (each with 12%).

Table 6.13: Relevance of the meat sector in total food industry output, value added and employment in the new Member States, 2000 (%)

	Output share	Share of Gross Value Added	Employment Share
Estonia	15.4	18.8	11.7
Latvia	13.8	13.1	11.8
Lithuania	11.3	n.a.	14.4
Poland	21.0	n.a.	24.7
Czech Republic	20.5	12.6	19.7
Slovakia	20.1	14.9	20.5
Hungary	25.3	17.1 [1)]	29.0
Slovenia	19.5	15.3	22.8
Romania	17.3	n.a.	14.4
Bulgaria	11.7	5.8	11.8

Note: [1)] Includes fish processing.

Source: EUROPEAN COMMISSION, DIRECTORATE GENERAL FOR AGRICULTURE [NETWORK OF INDEPENDENT AGRICULTURAL EXPERTS IN THE CEE CANDIDATE COUNTRIES] (2003).

6.3.2 Relevance of slaughterhouses in total slaughtering

In the new Member States, meat production sharply declined after the collapse of the socialist system. Table 6.14 reveals that this development even continued in recent years. In addition, this table indicates that in several CEECs, a large share of slaughtering is still carried out at the farm level. This holds true for Latvia and Bulgaria and also for Lithuania. No data was available for Romania, but it can be assumed that also in this country, on-farm slaughtering is still of great relevance. The information in Table 6.14 also indicates that even for the time after accession, quite diverse development can be expected in the different countries. For the Baltic countries, Poland, Romania and Bulgaria, it is assumed that the level of slaughtering will increase in slaughterhouses after accession to the EU. For Hungary, a decline, and for Slovenia, no change is forecasted. In Slovakia, the prospects for the future differ even between the different meats, and for the Czech Republic no data was available.

6.3.3 Structural issues in the meat sector

Table 6.15 provides information on structural issues in the meat sector of the CEECs. In all countries, the number of slaughterhouses has decreased in recent years and it is expected that this trend will continue after accession. The same development holds for all countries but Slovenia with respect to the number of meat processing enterprises. In Slovenia, the number of meat processing enterprises has increased in recent years, and the country experts expect no

change in the immediate future. As the reduction in the number of enterprises already indicates, concentration in the meat sector has increased in most countries in recent years and this trend is predicted to continue after EU accession. The reasons for the concentration process are the same as for the dairy sector, as have been discussed in section 6.2.3.

6.3.4 Conduct and performance in the meat sector

With respect to the past, and expected future development of total revenue or gross value added, Table 6.16 provides a very heterogeneous picture for the different countries. Only Estonia, Poland, the Czech Republic and Hungary have already experienced a positive trend with respect to these two performance indicators, and expect that this development will continue in the future. Latvia is also optimistic about the future. For the remaining countries, the outlook is less optimistic with respect to these indicators.

Excess capacities also play a considerable role in the meat sector, and here to a greater extent in slaughterhouses than other enterprises. Capacity utilisation in slaughterhouses is especially low in Slovakia, Hungary and Slovenia. The situation is likely even more problematic in Romania and Bulgaria, however, no information was provided with respect to this indicator for these two countries. The prospects for the future with respect to the utilisation of capacities are not as optimistic as in the dairy sector. Quite to the contrary for most countries, the experts expect no change or even an increase in excess capacities.
As in the dairy sector, there is still a large part of production that does not satisfy the criteria for export to the EU. In addition, there is still a considerable share of enterprises not applying the HACCP principle. However, it should be noted that, also with respect to these indicators, considerable differences exist between the countries (see Table 6.17 and Table 6.18).

6.3.5 Compliance with EU standards in the meat sector

Many enterprises in the meat sector of the CEE new Member States still do not comply with EU regulations. Some have applied for transitional arrangements, and many will have to leave the sector (see Table 6.19). Huge investments are necessary to modernise the meat industry in the new Member States and bring it up to EU standards, and as in the case of dairy production, national and SAPARD funds are provided. Nevertheless, as much as 60% of all enterprises in the meat sector, as is the case in the Czech Republic, will have to close. The regional consequences of these developments are again quite heterogeneous between the countries. In Latvia, Slovakia and Slovenia, again most of those enterprises that will have to close down are located in rural areas. In Estonia and Romania, the economically weak enterprises seem to be located in urban areas. No clear regional pattern with respect to this issue is observable for Lithuania, Poland and the Czech Republic. For the other countries, no information was available with respect to the regional distribution of the enterprise closures.

Table 6.14: Relevance of slaughterhouses in total slaughtering of meat: situation, recent development, expected future changes

	Presence/ Past/ Future [1)]	Estonia	Latvia	Lithuania	Poland	Czech R.	Slovakia	Hungary	Slovenia	Romania	Bulgaria
Year		**2001**			**2002**		**2001**				
Animals slaughtered in slaughterhouses in mill. tons and in % of total meat produced (carcass weight)	Present situation	Pork: 0.035 (100%). Cattle: 0.0175 (100%). Poultry: 0.007 (0%)	Pork: 0.012 (38%). Cattle: 0.003 (13%). Poultry: 0.009 (97%)	All meat: 0.095 (64%)	ca. 2.7 (ca. 90%)	Pork: 0.3659 (87%). Cattle: 0.1059 (100%). Poultry: 0.2378 (94%)	Pork: 0.12243 cw (coeff. 0.70), 77%. Cattle: 0.041554 cw (coeff 0.602), 99.8%. Poultry: 0.0817 cw (coeff 0.75), 98.9%	Pork: 0.2751 (85%). Beef: 0.0261 (99%). Poultry: 0.1552 (90%)	Pork: 0.038 (79%). Cattle: 0.035 (100%). Poultry: 0.052 (91%)	Total slaughtering: Pork: 0.462 Cattle: 0.167 Poultry: 0.299 Sheep: 0.052	Pork: 0.049 (20%). Cattle: 0.014 (19%). Sheep: 0.007 (12 %)
	Past development	-	-	Decline to 1999, then stable	0	n.a.	0	Pork: - Cattle: - Poultry: -	Pork: 0 Cattle: 0 Poultry: -	-	0
	Future development	+	+	+	+	n.a.	Pork: 0 Cattle: + Poultry: +	Pork: - Cattle: - Poultry: -	Pork: 0 Cattle: 0 Poultry: 0	+	+
On-farm slaughtering in % of total meat produced (carcass weight)	Present situation	Pork: 0 Cattle: 0 Poultry: 100	Pork: 62 Cattle: 87 Poultry: 3	All meat: 36	Pork: 13 Cattle: 9	Pork 13 Cattle: 0 Poultry: 6	Pork: 23 Cattle: 0.2 Poultry: 1.1	Pork: 15 Cattle: 1 Poultry: 10	Pork: 21 Cattle: 0 Poultry: 9	n.a.	Consumed beef, pork and mutton: nearly 60
	Past development	0	+	Increase to 1999, then stable	0	n.a.	n.a.	Pork: - Cattle: + Poultry: -	Pork: - Cattle: 0 Poultry: 0	-	0
	Future development	0	-	-	-	n.a.	n.a.	Pork: - Cattle: + Poultry: -	Pork: - Cattle: - Poultry: 0	-	-

Note: [1)] Present situation refers to the year indicated in line 2; past (future) development refers to the last three years (the first three years after accession). The signs indicate whether there has been (is expected to be) an increase (+), decrease (-) or no change (0) in the values/shares over the past (in the future).

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Table 6.15: Situation, recent developments and expected future changes in the meat sector: Structural issues

	Presence/ Past/ Future [1)]	Estonia	Latvia	Lithuania	Poland	Czech R.	Slovakia	Hungary	Slovenia	Romania	Bulgaria
Year		**2001**			**2002**		**2001**				
Number of slaughter-houses	Present situation	149	235 (2002)	189	Meat processing establishments with slaughter-houses for red meat: ca. 2,000	217	Red meat: Industrial capacity: 80, low capacity: 98. Poultry: 13	496	Pork: 11 Cattle: 30 Poultry: 3	408	274
	Past development	-	380 (1999) 267 (2001)	-	-	-	Pork: - Cattle: - Poultry: 0	-	Pork: 0 Cattle: - Poultry: 0	-	-
	Future development	-	-	-	-	-	Pork: - Cattle: - Poultry: 0	-	Pork: - Cattle: - Poultry: 0	-	-
Number of meat processing enterprises other than slaughter-houses	Present situation	62	153 (2002)	347	Red meat: ca. 1,500	217	Red meat: Industrial capacity: 73, low capacity: 180. Poultry: 13 (No clear distinction between slaughter-houses and processing)	327	26	1,579 (with slaughter houses)	500
	Past development	-	-	-	-	-	Cattle: - Pork: - Poultry: 0	-	+	-	-
	Future development	-	-	-	-	-	Cattle: - Pork: - Poultry: 0	-	0	-	-
Number of employees in slaughter-houses (in 1,000)	Present situation	0.98	3.74 (2002) [4)]	6.69 [4)]	n.a	24.7	9.6 [4)]	29	3.10	33.4 [4)]	n.a.
	Past development	-	-	-	n.a	-	- (10.3 in previous years)	-	-	n.a.	-
	Future development	-	-	-	n.a	-	-	-	-	n.a.	-

	Presence/ Past/ Future [1]	Estonia	Latvia	Lithuania	Poland	Czech R.	Slovakia	Hungary	Slovenia	Romania	Bulgaria
Year		**2001**			**2002**		**2001**				
Number of employees in meat processing enterprises other than slaughter-houses (in 1,000)	Present situation	n.a.	3.74 (2002) [4]	6.69 [4]	75.4 [5]	24.7	9.6 [4]	5	1.65	33.4 [4]	11.0
	Past development	n.a.	-	-	-	-	- (10.3 in previous years)	-	-	n.a.	-
	Future development	n.a.	-	-	-	-	-	-	-	n.a.	-
Concentration ratio (CR 4) in %	Present situation	63	49 (2001)	40 (1999)	ca. 15	15 (estimated)	37.5, 71.8, and 7.2 [2]	45	55	26.96 [3]	13 largest slaughter-houses produce 45% of meat
	Past development	+	0	+	+	+	+	+	0	-	+
	Future development	+	0	+	+	+	n.a.	+	+	-	+

Notes: [1] Present situation refers to the year indicated in line 2; past (future) development refers to the last three years (the first three years after accession). The signs indicate whether there has been (is expected to be) an increase (+), decrease (-) or no change (0) in the values/shares over the past (in the future). [2] Concentration ratio CR 3, CR 10 and Herfindahl-Index, respectively. [3] CR 5, 2001 data. [4] Animal slaughtering and meat processing. [5] Enterprises with at least 50 employees, 2001.

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Table 6.16: Situation, recent development and expected future changes in the meat sector: Performance issues I

	Presence/Past/ Future [1)]	Estonia	Latvia	Lithuania	Poland	Czech R.	Slovakia	Hungary	Slovenia	Romania	Bulgaria
Year		**2001**	**2001**		**2002**		**2001**				
Total revenue of the meat processing sector (in mill. EUR)	Present situation	95.9 [3)]	107.7	166.9	1,479 [4)]	1,425	Red meat: 326 White meat: 133	1,941	365.3	425	22.6
	Past development	+	0 (+)	-	+	+	Red meat: + White meat: +	+	+	-	+
	Future development	+	+	-	+	+	n.a.	+	0	-	-
Gross value added	Present situation	18.8 [3)]	13%	19.3	n.a.	76.6	Red meat: 34.8 White meat: 18.8	n.a.	80.2	-25	n.a.
	Past development	+	0	-	+	+	Red meat: - White meat: -	n.a.	+	-	n.a.
	Future development	+	+	-	+	+	n.a.	n.a.	-	-	n.a.
Excess capacity in slaughterhouses in % of total capacity of enterprises (average over all enterprises) [2)]	Present situation	21	small	0 (excess capacity is gone)	n.a	25	Pork: 40 Cattle: 57 Poultry: 20	40	40	n.a.	n.a.
	Past development	-	0	n.a.	n.a	0	Pork: - Cattle: - Poultry: 0	+	0	n.a.	n.a.
	Future development	-	+	n.a.	n.a	0	Pork: - Cattle: -	+	-	n.a.	n.a.
Excess capacity in meat processing enterprises other than slaughterhouses in % of total meat produced (average over all enterprises) [2)]	Present situation	18	Only 30-35% of raw material is processed in processing facilities. Excess capacity is small	0	n.a	25	Red meat: 8.5 Poultry: 4.5	30	25	n.a.	n.a.
	Past development	-	0 (small)	n.a.	n.a	0	Red meat: - Poultry: +	+	0	n.a.	n.a.
	Future development	-	0	n.a.	n.a	0	Red meat: - Poultry: +	+	0	n.a.	n.a.

Notes: [1)] Present situation refers to the year indicated in line 2; past (future) development refers to the last three years (the first three years after accession). The signs indicate whether there has been (is expected to be) an increase (+), decrease (-) or no change (0) in the values/shares over the past (in the future). [2)] It is considered that if capacity utilisation is 100% in the summer season and 55% in the winter season, excess capacity is 0%. [3)] 2000. [4)] Enterprises with at least 50 employees.

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Table 6.17: Situation in the red meat sector: Performance and conduct issues

	Estonia	Latvia	Lithuania [4]	Poland	Czech R.	Slovakia	Hungary	Slovenia	Romania	Bulgaria
Number of enterprises that have a license to export to the EU	1.2%	1 (1.1.2002) [2]	9 + 3 applied	60	12 [1]	Fresh red meat: 5 Meat products: 4	Beef: 10 Pork: 12	10	*Red meat: 8* Hunting meat: 2	5
% of production that satisfies criteria for export to the EU	Pork: 31 Cattle: 27	0 [3]	30	ca. 35	70 [1]	Slaughterhouses: 3.8 (expectation end of 2003: 94). Cutting plants: 5.5 (expectation end of 2003: 93)	Pork: 60 Cattle: 64	Pork: 0 Cattle: 80	n.a.	n.a.
% of enterprises that apply HACCP System	n.a.	10	30 (the rest is in the process)	ca. 15-20	100	10	73	Pork: 0 Cattle: 50	introduced	n.a.

Notes: [1] There is an overlap with white meat. [2] 27 have temporary permission from Food and Veterinary Service to export meat products to Estonia, Lithuania, non-member countries. [3] 3.4% of sausages and served meat satisfied criteria to export meat products to other counties. A large number of meat processing establishments do not yet fulfil EU requirements, and is one of the reasons that only a small proportion of enterprises applies the HACCP system. [4] No distinction has been made between white and red meat. 21 enterprises in meat industry meet all the EU requirements, 196 will meet them by the day of accession, and 176 will not meet them (have to be closed).

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Table 6.18: Situation in the white meat sector: Performance and conduct issues

	Estonia	Latvia	Lithuania [2]	Poland	Czech R.	Slovakia	Hungary	Slovenia	Romania	Bulgaria
Number of enterprises that have a license to export to the EU	98.8%	1	n.a. [2]	26	15 [1]	5	26	3	Fresh white meat: 3 Manufact. Products white meat: 4	7
% of production that satisfies criteria for export to the EU	Poultry: 71	0?	n.a. [2]	ca. 35	70 [1]	Poultry meat: 23.1 (expectation end of 2003: 100)	72	Poultry: 95	n.a.	n.a.
% of enterprises that apply HACCP System	n.a.	10	n.a. [2]	ca. 15-20	100 [1]	1 (estimation)	82	Poultry: 100	In stage of implementation	n.a.

Notes: [1] There is an overlap with red meat. [2] For Lithuania, no distinction has been made between white and red meat (see previous table).

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Table 6.19: Compliance with EU-standards in the meat sector

	Estonia	Latvia	Lithuania	Poland	Czech R.	Slovakia	Hungary	Slovenia	Romania	Bulgaria
Number of plants (and their share in total capacities) which applied for transitional agreements	2001 (37 %)	77 (until three years after the date of accession)	n.a.	336 (red and white meat) (ca.10-15%)	190	Red meat 1 plant (slaughterhouse and cutting plant), (10.1% from total capacity of slaughterhouses; 1.7% from total capacity of cutting plants 2.1% from total capacity of red meat product production	44 companies, but recently 9 companies were removed from the list	More than 50% (about 50% capacities)	n.a.	12 n.a. for capacity
What are the main reasons for enterprises not being able to comply with EU-standards (e.g. veterinary, hygiene, environmental)?	Lack of investments	Bad situation of processing facilities; outdated technological equipment; insufficient quantity of special trucks for animal and meat product transportation; lack of equipment for meat quality grading; lack of cutting facilities; wastewater treatment; Processing of meat production waste	Environment	High costs to be borne in short time	Hygiene standards (investments)	Most plants will meet EU requirements 31.12.2003. One plant will be closed down. 1 plant has transition period due to the hygiene shortcomings and has individual development plan	Various reasons, in poultry sector mainly environmental standards	SMEs due to cooling or packaging facilities, and not compliance with environmental standards	Sanitary veterinary rules Hygiene quality	Veterinary and hygiene. To meet the EU standards a lot of funds are needed. The quality of carcass (especially cattle) meat is not very high – the cattle herd of the country is for milk, not specialised meat animals
What are the estimated costs of complying with EU-standards for the respective sectors (in mill. EUR)?	360	7-8 p.a. (estimated)	n.a.	ca. 1,000 (estimates in 2000 for meat processing)	n.a.	Red meat: 22 (2000–2003) and 19 (2004–2006). Poultry: 6.7 (2000–2003) and 5.7 (2004–2006)	n.a.	n.a.	n.a.	40-50

	Estonia	Latvia	Lithuania	Poland	Czech R.	Slovakia	Hungary	Slovenia	Romania	Bulgaria
Does the government support introducing the *acquis* in the food processing industry and in food marketing?	Equipment	Yes, for the development of healthy and high quality herds and on the basis of premiums per animal; for the sale of young cattle for processing; development and realisation of meat classification by EU legislation; Amounts of EUR 2.56 mill. provided [1)]	Yes, SAPARD Programme is under implementation	Yes, primarily interest rate subsidy on invest-ment for adjustments necessary to improve efficiency and competitiveness; compliance with *acquis*	The food sector total: EUR 7.9 mill. provided in 2002	Subsidy on a new technology and removing, storage and transport of the specific danger waste in food industry	There is a national program to implement *acquis*. In 1993, there was a budget of EUR 20 mill.	Environment and hygiene measures	In rural area	In all areas most important part of government policy to agriculture is to support introducing the *acquis*
Is SAPARD used to support introducing the *acquis* in the food processing industry and in food marketing?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimated share of enterprises (in number and production capacity) that will have to close down because of not being able to comply to EU standards	91, 0.01 mill. t capacity	Approximately 90% of total slaughterhouses and about 55% of meat processing enterprises. Production capacity less than 50%	Around 200 or about 35% in 2004. Capacity is less, as these tend to be smaller	Ca. 1,600 enterprises (red meat) and 200 (white meat) (ca. 40% of all meat processing enterprises and ca. 15% capacity share)	20%	1 slaughterhouse, 0.63% of total capacity	The majority of the 827 companies might be closed, but those 12 companies, which already work on EU standards have an over-capacity, making substitution able to all current productions	20% (15%)	15%	35-49% of enterprises 25– 35% of production capacity

	Estonia	Latvia	Lithuania	Poland	Czech R.	Slovakia	Hungary	Slovenia	Romania	Bulgaria
Estimated share of enterprises (in number and production capacity) that will have to close down because of not being able to withstand EU-competition	91, 0.01 mill. EUR	Approximately 90% of total slaughterhouses and about 55% of meat processing enterprises. Production capacity less than 50%	Investment programmes are under implementation	ca. 0 – 10%	60% number, less than 20% capacity	low capacity plants: 83 (30% of production capacity)	Significant over-capacities at competitive enterprises will prevent a significant fall even if a great number of companies would be closed	15% (20%)	25%	The enterprises producing for local markets (the prevailing number of those now existing) is not expected to be heavily hit by EU competition
What is the regional distribution with respect to enterprises that will have to close down?	Mainly in urban area 93%	Primarily rural enterprises will have to closed down	No regional pattern	No clear regional pattern	Irrelevant	Rural (except Bratislava region, plants are assumed to be closed down mostly in rural areas)	n.a.	More often SMEs more closely associated with rural areas	n.a.	n.a.

Note: [1)] The annual financing agreement for 2001 was signed in February 2002 and entered into force in June 2002. Up to June the SAPARD agency has received 444 project applications from potential beneficiaries. Of these, 219 have been approved, involving around 10.4 million of public support.

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

6.4 Regional aspects of food processing

The expositions in section 6.2 and 6.3 revealed, for dairy and meat processing in the new Member States, that a considerable share of enterprises will have to close down because they are not able to fulfil EU standards and/or withstand EU competition. Given that the overwhelming share of agricultural products is, in general, processed over several stages before consumption, the developments in the food processing sector are of great relevance for agriculture. Particularly in the short term, problems might arise. Some farmers will lose their outlet channel and need to build up new business relationships. In some instances, farmers might even have to change the kind of products produced, e.g., due to the closure of a sugar plant and the fact that no alternative plant exists in the region. These developments will lead to adjustment costs in the farm sector. In the medium- to longer-term, however, the closure of food processing enterprises is likely to induce a rise in the competitiveness of the food industry and, thus, would enhance the development of a competitive agri-food sector.

A competitive agri-food sector is an important pillar for rural areas. Thus, given the discussion above, especially in the short-term, the developments in the food industry might endanger the maintenance of a vibrant rural economy. This holds true especially if not only primary production, but also a great part of processing is located in rural areas. Unfortunately, information on this aspect is rather weak in the CEECs, as Table 6.20 reveals. In several new Member States, statistics do not exist that allow to differentiate the location of the processing plants. This holds true for Lithuania, Poland, the Czech Republic, Hungary, Romania and Bulgaria. Based on the expert information in Lithuania, however, most of the enterprises processing grain, as well as fruits and vegetables, and all of those processing sugar are located in urban areas. For the other processing branches, no information could be provided. The situation seems to be similar in Romania. The country experts estimate that about 85% of all plants are located in urban areas.

In Estonia, about 70% of all processing enterprises are located in urban areas, while only the remaining 30% contribute to the production value and employment of the rural economy (see Table 6.20). In Latvia, this situation varies between the different branches analysed. Whereas dairy plants, grain mills, sugar plants and meat processing enterprises are predominately located in urban areas, the opposite holds for slaughterhouses and enterprises processing fruits and vegetables. On average over all food branches, however, the rural regions are, with a share of about 30%, of less importance than the urban ones. In Slovakia, processing enterprises are mainly found in rural areas, while the opposite holds true for Slovenia.

This short overview reveals that the situation is quite different in the various new Member States. However, it should be noted that it is not only the share of enterprises in rural and urban regions that is of relevance, but also their competitive position. Even if most enterprises are located in urban areas, if those in rural regions are the ones primarily forced to close down, (e.g., because those enterprises in rural areas are generally of smaller size and/or cannot acquire the necessary funds to adjust to the *acquis communautaire*) the consequences still might be problematic for the rural economies of the respective countries.

Table 6.20: Regional aspects of food processing with the respective percentage in urban and rural areas [1)]

	Estonia		Latvia [2)]		Slovakia		Slovenia	
	Urban	Rural	urban	rural	urban	rural	urban	rural
Dairy sector: - no. of plants - number of employees - value of production	2001 71% 78% 78%	2001 29% 22% 22%	 38% 77% 80%	 62% 23% 20%	 - 1 plant - 6% of empl. - 15% of total capacity	>2 mill. litres of milk: 36 plants, 80% of total capacity 500,000 – <2 litres of milk: 31 plants, 3% of total capacity <500,000 litres of milk: 433 plants, 2% of total capacity	 95% 92% 96%	 5% 8% 4%
Meat sector (slaughter-houses): - number of slaughter-houses - number of employees - value of production	2001 68% 62% 65%	2001 32% 38% 35%	Total 235 (20%)	80% there are on-farm slaughter-houses	Red meat sector (slaughterhouses): No plants in Bratislava and Kosice towns districts	Red meat sector (slaughter-houses): - Industrial capacity: 80 plants, 89% of total capacity; - Low capacity: 98 plants, 11% of total capacity.	 74% 90% 92%	 26% 10% 8%
Meat processing sector: - number of enterprises - number of employees - value of production	2001 74% 74% 71%	2001 26% 26% 29%	- Total 153 (60%) - 3304 (total: in slaughterhouses and meat processing enterprises) - 85.7 mill. EUR	40 %	Red meat processing sector: No plants in Bratislava and Kosice towns districts. Poultry meat sector: 2 plants, 35.9% of total capacity	Red meat: - Industrial capacity: 73, 86.8% of total capacity - Low capacity: 180, 13.2% of total capacity Poultry meat: - Industrial capacity: 21 plants, 64.1% of total capacity	 90% 92% 94%	 10% 8% 6%
Grain mill products: - number of enterprises - number of employees - value of production	2002 71% 66% 67%	2002 29% 34% 33%	 66% 80% n.a.	 34% 20% n.a.	n.a.	- 15 industrial mills (enterprises >20 employees) - 90 smaller mills	 80% 90% 92%	 20% 10% 8%
Sugar sector: - number of enterprises - number of employees - value of production	n.a.	n.a.	- 2 enterprises - 1363 employees - EUR 43.6 mill.	None in rural areas	n.a.	5 sugar factories	 100% 100% 100%	 0% 0% 0%
Fruit and vegetable sector: - number of enterprises - number of employees - value of production	n.a.	n.a.	- 10 enterprises - 350 employees - total: EUR 43.4 mill.	- 15 enterprises - 535 employees	n.a.	- 15 canneries (enterprises > 20 employees - 21 smaller canneries	 60% 62% 63%	 40% 38% 37%

	Estonia		Latvia [2]		Slovakia		Slovenia	
	Urban	Rural	urban	rural	urban	rural	urban	rural
Total food processing sector:	2001	2001	2002, both rural and urban:		n.a.	101 plants >20 employees		
	- 571	- 233	- 11502 enterprises				80%	20%
	- 10100	- 4700	- 33698 (relationship urban – rural 70:30)				85%	15%
	- EUR 455.8 mill.	- EUR 166.4 mill.	- EUR 693.9 mill.				90%	10%

Notes: [1] No statistical base was available for Lithuania, Poland, the Czech Republic, Hungary, Romania and Bulgaria to distinguish the location of the processing plants.
[2] 2001, value of production 1999.

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

6.5 SWOT analysis for the dairy and meat industry

This section provides the SWOT analysis of dairy and meat processing carried out by the country experts. This type of analysis is an effective way of identifying the **s**trengths and **w**eaknesses, and of examining the **o**pportunities and **t**hreats an enterprise/branch or sector faces.

6.5.1 Dairy industry

For Lithuania, the Czech Republic, Slovakia, and Hungary the country experts see the relative high concentration in dairy processing to be an advantage (see Table 6.21). Indeed, over recent years concentration has quite rapidly increased in the new Member States and, thus, also the average size of dairies. This development has been advantageous for the dairy sector in these countries. However, it needs to be considered that compared to their competitors in Western countries the size of the enterprises is still rather small (see section 6.3).

A rise in competitiveness due to lower costs in production and processing of milk is mentioned by the experts from the Baltic countries and Hungary as strength. This development is due to at least three reasons: first, a stronger rise in labour productivity compared to wages; second, a scale effect due to a rise in the number of cows per farm and in yields per cow as well as in production per dairy plant and in capacity utilisation and third an improvement in the quality of milk. The latter allows the manufacturing of dairy products with high quality and simultaneously reducing energy costs for thermic treatment of the raw material. In addition, this improves the input/output ratio and thus leads to lower input costs.

The large amount of foreign investment in the dairy sector in Poland, the Czech Republic and Slovakia is regarded a major strength. Indeed, foreign direct investment (FDI) inflows are considered essential for the success of the economic transformation of the dairy sector in the new Member States. Such investments often stimulate competition in the local market thereby increasing the efficiency of the whole industry. This, in turn, leads to creating new export opportunities and the inflow of specific, often intangible assets acquired by foreign investors. Thus, the amount of foreign direct investments is a major factor in influencing the performance and future prospect of an industry. Beside Poland, the Czech Republic and Slovakia, for which the country experts explicitly acknowledge FDI to be a strength in their dairy sector, also Hungary, Estonia and Lithuania have been quite successful in attracting foreign capital to enter their dairy industry.

"EU standards" are evaluated quite differently among the experts. The implementation of the *acquis* is regarded a major strength for Latvia, the Czech Republic, Slovenia, Romania, and Bulgaria since it opens up the possibility to export high quality products to the EU. Hygienic standards are, at the same time, seen as a weakness for almost the same country group (Latvia, Poland, Slovenia, Romania, and Bulgaria). This is not a contradiction. As far as the *acquis* has been implemented it has strengthened the position of the respective enterprises in the countries. However, as has been shown in section 6.3 there are still many enterprises that are behind following these hygienic standards and this, indeed, can be regarded as a weakness. The aspect of "adoption of EU-standards" is also mentioned as an opportunity by the country experts of Latvia, the Czech Republic, Slovakia and Slovenia since they induce higher quality of the dairy products. On the other hand, these standards are regarded as a threat by the Latvian, Estonian and Slovenian experts since the implementation of those standards leads not only to an improvement of the quality but also to higher production and processing costs.

For Poland, Slovenia and Bulgaria the experts assess the development of new products as a major strength while for Estonia, Lithuania and Poland they stress the relatively high level of technology to be an advantage.

The fragmented structure of dairy farms is seen as the major weaknesses of the entire dairy industry in all new Member States but Estonia, the Czech Republic and Slovakia (cf. Section 6.3). As mentioned above, high quality and hygienic standards are regarded as a substantial weakness as well. The problem of over-capacities has been discussed in section 6.3 and is regarded as one more weakness by the Estonian and Hungarian experts. However, it should be noted that excess capacities is a point of worry in most other new Member States, too.

In countries where farm structure is especially strongly fragmented (Latvia, Poland and Slovenia) a trend towards concentration of milk production is regarded as an opportunity. The Baltic countries and Hungary are net exporters of dairy products. For them the enlarged market for exports after acceding to the EU provides an opportunity to increase exports. EU enlargement also offers the chance of entering new markets for highly processed and organic products (Latvia, Lithuania, the Czech Republic, Slovakia and Hungary).

On the other hand, accession to the EU also imposes threats for the new Member States. For example, increased competition from the EU is seen as a threat by several country experts (Lithuania, Poland, the Czech Republic, Hungary and Slovenia). In addition, fulfilling the high standards mentioned above may become an obstacle if there is too little investment capital for adapting those standards (Poland, Romania and Bulgaria).

Table 6.21 Synthesis of the SWOT analysis for the dairy sector

Strengths (+)	Weaknesses (-)
– concentrated dairy industry (LT, CZ, SK, H) – increasing competitiveness of milk production regarding production and processing costs (EST, LV, LT, H) – strong foreign investment in the dairy sector (PL, CZ, SK) – progressing implementation of EU Standards and possibilities for exports to the EU (LV, CZ, SLO, ROM, BG) – diversified products and development of new products (PL, SLO, BG) – relatively high level of technology (EST, LT, PL)	– fragmented and/or small-scale primary milk production (LV, LT, PL, H, ROM, SLO, BG) – quality and hygienic standards (LV, PL, SLO, ROM, BG) – restrictions and no support for exportation of dairy products (EST, CZ) – over-capacities of the processing plants (EST, H)
Opportunities ☺	**Threats ☻**
– change of the small-scale milk production (LV, PL, SLO) – enlarged markets for exports and export support after EU accession (EST, LV, LT, H) – quality improvement by adoption of EU standards (LV, CZ, SK, SLO) – market for highly processed and organic products (LV, LT, CZ, SK, H)	– increased competition from the EU and/or rising imports (LT, PL, CZ, H, SLO) – higher production and processing costs due to EU standards (LV, EST, SLO) – little access to capital for modernising and adapting to EU standards (PL, ROM, BG)

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

6.5.2 Meat industry

The strengths, weaknesses, opportunities and threats related to the meat sector follow rather closely those discussed for the dairy industry. Nevertheless, differences exist also. Rather than paying too much attention to the former the latter will be stressed in the following elaboration.

In some of the new Member States (Latvia, Lithuania, Poland, the Czech Republic, and Bulgaria) the meat market and especially that for specific meat products is regarded of great value. The strength of other new Member States rests with their good experience in meat production and the qualified labour force (Estonia, Latvia and Slovakia, see Table 6.22). The low concentration in the processing sector is a problem in many of these countries as it is dis-

cussed in section 6.4. For example, the country experts for Latvia, Poland, Slovakia, Hungary and Slovenia point this out. In addition, specialisation in meat production is rather low in Latvia, Poland, Hungary, and Slovenia. The level of technology employed is often not the most recent one in Latvia, Slovakia, Hungary and Bulgaria. The opportunities are almost identical to those mentioned for the dairy sector. But also with respect to this issue the domestic market is again mentioned – due to an increase in income it is expected that meat demand will rise which indeed is an opportunity for the domestic meat industry (Poland, Hungary). The threats related to the meat sector resemble those for the dairy branch and thus no further discussion is needed.

Table 6.22 Synthesis of the SWOT analysis for the meat processing sector

Strengths (+)	**Weaknesses (-)**
– relatively low production costs compared with the EU competitors (EST, PL, SK) – strong demand on the domestic markets for national/specific products (LV, LT, PL, CZ, BG) – increasing (foreign) investment and technological progress (EST, LV, PL, H) – progressing adoption of EU standards (CZ, SLO, BG) – experience in meat production and qualified labour force (EST, LV, SK)	– low concentration of processing plants (LV, PL, SK, H, SLO) – low rate of specialised meat production (LV, PL, H, SLO) – restricted and little exports of meat and meat products (EST, SLO, BG) – low level of technology (LV, SK, H, BG)
Opportunities ☺	**Threats ☻**
– better adoption to EU standards will improve quality, image and/or export of meat (LV, PL, SK, SLO) – access to export subsidies and EU programmes (EST, PL, H) – rising demand for meat on domestic markets due to income growth (PL, H) – specialisation on organic, regional or high value products (LV, CZ, SK, H) – (foreign) investment (LV, CZ, SLO)	– rising costs in order to meet EU standards (LV, PL, SLO) – increasing imports and competition from the EU (LV, CZ, SK)

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

7 AGRI-ENVIRONMENTAL POLICIES AND THE IMPACT OF AGRICULTURE AND AGRICULTURAL POLICY ON THE RURAL ENVIRONMENT

During the socialist era and the early years of transition, agri-environmental matters were typically not a political priority in the CEECs. However, impending accession to the EU has turned attention to the ability of, and the progress made by, the new Member States in implementing the *acquis communautaire*, including its environmental components. Throughout the region, the adoption of the *acquis* has led to a raft of new laws and amendments to existing ones concerning the environmental regulation of agriculture. This chapter considers the evolution of agriculturally induced environmental problems in the acceding countries and profiles recent changes in legislation and policies, drawing on completed questionnaires from country experts.

7.1 Overview of agri-environmental problems in the socialist and transition period

While post-war socialist regimes in all CEECs except Poland and Yugoslavia promoted an agri-industrial model of development based on large collective and state-owned farms, the growth in the intensity of production in the CEECs, by and large, did not keep pace with Western Europe (ZELLEI ET AL. 2002). This lower intensity of production was not a desired outcome, in fact the socialist regimes largely sought the opposite result, but it nevertheless emerged through a combination of factors which included the inefficiency of central planning. The intensification that did occur from the 1950s to 1980s, however, brought some environmental problems such as eutrophication stemming from an increase in nutrient run-off and a loss of biodiversity as a result of the destruction of many traditional grassland habitats (BALDOCK AND PIENKOWSKI 1996, BROUWER ET AL. 2001). The construction of intensive livestock units during the 1960s and 1970s became a major pollutant of soil and water, and agriculture was often the single biggest cause of water pollution. For example, around 50% of nitrate and phosphate pollution in the Danube River Basin, at the beginning of the 1990s, were attributed to agriculture (HASKONING 1994, cited in ZELLEI ET AL. 2002). Problems with the nitrate pollution of drinking water are especially acute in remote locations and rural areas where, due to the dominance of the homestead structure, centralized water supplies are not common and the population relies on water wells as, e.g., in Lithuania. The use of heavy machinery often causes soil compaction. In some regions, soil erosion constitutes another urgent problem. This holds particularly true for Bulgaria, where an estimated 40% of the country's area is affected by water erosion and 15% by wind erosion. The second highest shares among the CEECs are reported for Hungary (ca. 20% and 10%, respectively) (EEA in print). For Lithuania, the country experts estimate that 14-15% of agricultural land is affected by erosion. Loss of fertile surface layer is about 1.8-2.5 tonnes per 1 ha of farmland. The erosion process is more pronounced in the Western part of Lithuania, where it reaches 12-15 t/ha.

During the socialist era, these problems were rarely recognised at a national or international level, and environmental matters were largely subjugated to economic imperatives. While environmental regulations for agriculture were in place in all states, they were often overridden by party-industry alliances (PRYDE 1991), particularly on lowlands and in fertile regions. In areas deemed of less economic importance, there was greater freedom for the establishment of national parks and nature reserves, often linked to scientific research institutions (WEINER 1988).

There are similarities, but also differences between the current EU Member States and the CEECs concerning the relationship between agriculture and the environment. Also in Western European countries, the increasing intensification and specialisation of agricultural production, as well as the regional concentration, particularly of livestock production, has caused environmental problems such as eutrophication, loss of biodiversity and soil degradation. Under the centrally-planned systems in CEE, agricultural employees had less incentives to use inputs

like fertiliser and pesticides efficiently than did profit-oriented farmers in a market economy. This may have led to the more excessive use of input, which would have been harmful to the environment. However, it could also have induced a sub-optimal intensity of usage, which would have had positive environmental effects. Farm size structures between the CEECs and the EU Member States did and do significantly differ. Although there is no evidence for a correlation between farm size and environmental impacts in general, the huge livestock enterprises in CEE caused severe environmental problems with regard to manure disposal. In Western Europe, agriculturally-induced ecological problems did not reach public awareness until ca. 25 years ago. Since then, the public has become more concerned about environmental issues, and the pluralistic and democratic system has facilitated the increased political priority of these issues. This was not the case in the socialist systems. In the EU, the growing political priority resulted, e.g., in an increase in environmental legislation, but also in financial support for environmentally-friendly production methods.

During transition, faced with deteriorating input-output price ratios and falling returns to agricultural activities, farmers in CEE responded by reducing their use of tradable inputs. For example, the total consumption of chemical nitrogen fertilisers more than halved in most CEECs during the first half of the 1990s (see Table 7.1) and the consumption of phosphate and potash fertilisers shrunk even more. In 2001, in all CEECs except for the Czech Republic and Slovenia, the average N input was significantly lower than the EU-15 average of 66 kg/ha. In most of the CEECs, less than 10 kg P_2O_5 and K_2O, respectively, are applied per hectare compared with 21 kg P_2O_5 and 24 K_2O in the EU 15. As the intensity of agricultural production fell during transition, agri-environmental issues in the CEECs garnered even less attention. Many saw the decreasing intensity of agricultural production as an unqualified environmental benefit, and thereby, in some ways, long-standing problems 'disappeared' (ZELLEI ET AL. 2002).

Table 7.1: Use of chemical fertiliser (NPK) per ha agricultural land (average, kg/ha)

Nitrogenous Fertilizers (kg N/ha)

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Estonia				27	21	18	13	11	14	17	14	16	20
Latvia				25	16	16	5	6	8	13	14	11	15
Lithuania				25	12	12	11	23	23	24	27	28	29
Poland	79	36	36	36	40	45	46	49	55	47	47	49	47
Czech Rep.					47	56	54	61	53	51	49	61	73
Slovakia					27	28	29	32	30	34	27	34	33
Hungary	88	55	41	24	37	40	40	52	46	46	52	55	38
Slovenia				85	69	81	65	46	69	71	69	67	68
Romania	53	52	19	24	28	15	16	18	15	18	12	16	18
Bulgaria	80	74	61	31	27	34	18	25	25	22	18	23	24
Portugal [1)]	36	38	36	33	33	32	32	35	34	35	29	27	28
EU (15) [2)]	73	69	68	63	64	67	67	70	68	69	70	65	66
Netherlands [3)]	206	195	197	196	187	200	199	197	191	177	175	153	150

Phosphate Fertilizers (kg P_2O_5/ha))

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Estonia				18	8	3	3	2	3	3	3	4	5
Latvia				18	1	1	2	2	3	4	4	4	6
Lithuania				5	5	4	9	3	5	5	6	6	6
Poland	49	18	8	12	13	15	16	17	16	17	16	17	17
Czech Rep.					12	10	14	12	11	12	8	10	12
Slovakia					7	7	7	9	7	8	5	8	8
Hungary	49	20	4	3	4	5	9	12	12	6	8	8	8
Slovenia				28	28	33	32	33	35	38	40	35	33
Romania	24	21	10	11	11	8	9	10	6	5	3	4	3
Bulgaria	36	24	10	4	6	2	2	2	2	1	1	1	1
Greece [1)]	19	21	19	19	14	14	15	16	15	14	14	13	12
EU (15) [2)]	33	30	28	25	25	26	25	26	25	25	24	22	21
Italy [3)]	36	38	41	38	37	37	35	37	33	33	33	32	31

Potash Fertilizers (kg K_2O/ha)

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Estonia				33	16	7	3	2	2	2	3	4	5
Latvia				24	21	21	2	2	3	3	4	5	5
Lithuania				14	8	6	14	9	11	11	11	10	11
Poland	48	29	15	15	15	17	19	20	22	21	20	20	20
Czech Rep.					12	13	13	8	10	7	6	6	7
Slovakia					6	6	8	8	7	7	4	7	7
Hungary	49	30	6	3	7	7	11	10	11	8	10	9	9
Slovenia						40	40	41	45	47	49	43	41
Romania	16	9	3	2	2	2	0.2	1	1	1	1	1	1
Bulgaria	15	13	5	3	0.4	0.4	0.0	4	5	4	1	0.4	0.4
Greece [1)]	7	8	7	6	6	6	6	8	7	7	7	7	7
EU (15) [2)]	37	34	31	28	28	29	30	30	30	28	27	25	24
Belg.-Luxemb. [3)]	84	81	73	69	68	67	61	64	61	60	58	54	52

Notes: [1)] Member State with the lowest input in 2001. [2)] Including Austria, Sweden and Finland also, prior to their EU accession. [3)] Member State with the highest input in 2001.

Source: Authors' calculations based on FAOSTAT (2003).

This decrease in the intensity of production further lowered the saliency of agri-environmental matters, particularly during the era of macro-economic contraction and very constrained government budgets. In many agricultural ministries only a handful of staff dealt with agri-environmental matters and in some cases such staff were entirely absent.

However, assessments of agri-environmental problems should not be reduced solely to debates about intensification. Problems that may stem from small-scale, low input agriculture

have been underplayed. Low-input farming still requires careful management and monitoring, especially in sensitive ecosystems. For example, low-input agriculture in Central and Eastern Europe often places too little emphasis on the replacement of organic matter in soils, appropriate manure management or implementing anti-erosion measures (ZNAOR 1999). As such, water pollution from agricultural activities (both from livestock and arable farming) is still an important issue. An emphasis purely on technical aspects, however, ignores wider socio-economic aspects of sustainability. It also ignores how investments required for environmental improvements on farms and the wider rural infrastructure can be financed in an era of low returns to agrarian activities. Moreover, while average input intensity may be low, this may mask significant 'hotspots', given the very diverse structure of farming in the region. Yet the perception that low intensity production cannot be associated with pollution or landscape damage is still widely held in the region and has been a barrier to the development of effective systems of governance. Furthermore, land abandonment and under-grazing are creating new environmental pressures. Semi-natural grassland, which is highly valuable with respect to biodiversity, depends for its maintenance on appropriate management by farmers through mowing or grazing (see EUROPEAN ENVIRONMENTAL AGENCY 2003). Therefore, it is particularly sensitive to abandonment (or intensification). Compared with most of the current EU Member States, the proportion of semi-natural grassland in the new Member States is high (see Table 7.2). For Estonia, it is estimated that about 30% of the total agricultural area has been abandoned. This share is even higher for permanent grassland (56%) and semi-natural grasslands of medium or high nature value (60%) (see EUROPEAN ENVIRONMENTAL AGENCY 2003).

Table 7.2: Estimated distribution of agricultural areas, permanent grassland, semi-natural and natural grasslands in CEE countries in 1999

	Total utilised agricultural area (UAA) (ha)	Total area of permanent pasture (ha)	Total semi-natural grassland area (ha)	Total mountain grassland area (ha)	Semi-natural grassland in total UAA (%)
Estonia	1,434,000	299,000	73,200	0	5.1
Latvia	2,486,000	606,000	117,850	0	4.7
Lithuania	3,496,000	500,000	167,933	0	4.8
Poland	18,435,000	4,034,000	1,955,000	413,600	10.6
Czech Republic	4,282,000	950,000	550,000	1,750	12.8
Slovakia	2,443,000	856,000	294,900	13,100	12.1
Hungary	6,186,000	1,147,000	960,000	0	15.5
Slovenia	500,000	298,000	268,402	29,822	53.7
Romania	14,781,000	4,936,000	2,332,730	285,000	15.8
Bulgaria	6,203,000	1,705,000	444,436	332,071	7.2

Source: EUROPEAN ENVIRONMENT AGENCY (2003).

7.2 Monitoring and enforcement agencies for dealing with agricultural pollution

All CEECs have agencies for monitoring and enforcing agri-environmental regulations (Table 7.3). Institutional structures vary enormously between countries and in many cases institutional responsibilities lack clear definition.

Table 7.3: Monitoring and Enforcement Agencies for Dealing with Agricultural Pollution

	Agencies
Estonia	Plant Production Inspectorate (PPI) of the Ministry of Agriculture. Monitoring - Estonian Environmental Information Centre (EEIC)
Latvia	State Plant Protection Service, State Livestock Improvement Inspection, Environmental Management Boards, Latvian Environmental Agency and State Land Service
Lithuania	Ministry of Environment (legislation, investment programmes), Ministry of Health Care (drinking water quality), Ministry of Agriculture (Nitrate Directive), State Food Quality and Veterinary Service (drinking water quality), Department of Water Resources, Agri-chemical Research Centre (laboratory control, monitoring procedures), Institute of Water Resources (implementation of water protection requirements, research and monitoring), Lithuania's Geology Service (ground water protection), Regional Departments of the Ministry of Environment (screening of investment projects, issuing user permits, implementation of laboratory control and monitoring), Municipal Authorities (implementation of technical requirements, monitoring, investment management, etc.), Department of Forests and Protected Areas (establishment of special protected zones and monitoring), monitoring of agricultural pollution by a specialised control station in Kedainiai.
Poland	Chief Inspector of Environmental Protection
Czech Republic	State Phyto-sanitary administration (monitoring content of residuals)
Slovakia	Ministry of Agriculture, Ministry of Environment (water protection), Slovak Hydro-Meteorology Institute (monitoring), Slovak Environmental Inspectorate (inspection); 373 monitoring stations for groundwater.
Hungary	Undertaken by regional inspection agencies and by National Parks. Responsible to Ministry of Agriculture and Ministry of Environment.
Slovenia	3 main agencies: (a) Centre for Soil and Environmental Sciences of the Biotechnical Faculty of the University of Ljubljana; (b) Centre for Health Care (Zavod za zdravstveno varstvo) and (c) Agricultural Institute of Slovenia (Kmetijski inštitut Slovenije)
Romania	Main agencies: Ministry of Agriculture, Food and Forestry, Ministry of Waters and Environment Protection and Academy of Agriculture and Forestry Sciences- Institute for Pedological and Agrochemical Research.
Bulgaria	Executive Environmental Agency and the National Service for Soil Resources

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

In *Romania*, a variety of governmental organisations have responsibilities related to biodiversity laws, but the institutional arrangements for biodiversity conservation and the management of protected areas are not clearly-defined. Local authorities in Romania are responsible for land-use planning but typically lack the appropriate capacity or qualified staff for incorporating biodiversity/nature conservation considerations into their policies. The 41 Environmental Protection Agencies' (EPAs) offices (in each county) have legal responsibility for environmental monitoring and nature conservation but often lack sufficient expertise. As accession prompts a growth in environmental regulation, it is important that new laws stipulate the separation of regulatory responsibilities, specifying their functions and management responsibilities.

Effective agri-environmental policy and enforcement requires careful co-operation between Ministries of Agriculture and Ministries of the Environment. As in many Member States, several acceding states suffer from a historical lack of co-operation or even bureaucratic infighting between these two Ministries. In *Poland*, the Ministry of Agriculture during most of the 1990s was unwilling to recognise agriculture as a source of water pollution. As a result, the prevention of agriculturally-induced water pollution did not figure in the implementation programme of the 1994 National Environmental Programme (NEP), formulated by the Ministry of the Environment. This was in spite of the fact that the NEP names agriculture as one of the two main sources of water pollution (KARACZUN 2001). In *Slovakia*, similar problems related to the fragmentation of responsibilities and difficulties of co-ordination across Ministries and agencies are reported.

Small-scale farm structures cause high administrative costs when monitoring agriculturally-induced pollution and enforcing legislation as reported by the country experts on *Lithuania*. However, the same probably holds for those of the other new Member States with a fragmented farm structure. For Lithuania, it is furthermore reported that land reform is not yet completed and that the new owners in some cases are not well aware of environmental constraints and requirements.

7.3 Implementation of the Nitrate Directive

In the following, the state of implementation of the most important EU directive with regard to agriculture and water pollution, the Nitrate Directive, is described. An overview on other legal provisions relevant for limiting agriculturally-induced water and soil pollution is provided in annex 1 of this chapter.

The objective of the Nitrate Directive (91/676/EEC) is to reduce agriculturally-induced pollution of waters with nitrates. The main emphasis is placed on the management of manure and other fertilisers. Member States are required to both identify waters affected by nitrate pollution and waters that could become polluted in the absence of corrective action. Based on monitoring data, such areas should be designated as Nitrate Vulnerable Zones (NVZs). In NVZs, Action Programmes containing measures that govern agricultural practices are mandatory and a Code of Good Agricultural Practice (CGAP) must be established and implemented. An alternative to designating discrete NVZs is for a Member State to follow a 'whole territory' approach, so that all farms within a country have to adhere to the CGAP. The latter approach has been taken, for example, in Austria, Denmark, Finland, Germany and the Netherlands.

The implementation of the Nitrate Directive by the existing EU-15 has been slow, and in the eyes of the European Commission, in most cases insufficient. For example, by the end of 2001, 14 Member States were subject to infringement procedures for failing to fully implement the directive (the exception was Denmark) (EUROPEAN COMMISSION 2002). Legal procedures have been issued mainly for inadequate water monitoring, and the insufficient designation of NVZs and implementation of Action Programmes. While some states, mostly notably Denmark, have attempted to fully implement the spirit of the directive, other Member States have sought to implement it in a way which minimises its impact on farming practices and administrative costs.

Table 7.4 details the progress made on implementing the Nitrate Directive in the acceding countries. As in current Member States, the directive has been controversial. Many agricultural organisations have argued that the directive is inappropriate for the new Member States given the lower intensity of livestock farming and use of inorganic fertilisers. However, many cases of excessive levels of nitrate pollution in shallow wells have been recorded in Central and Eastern Europe, although existing data often does not allow conclusions to be drawn as to the source of nitrates (ZEMECKIS AND LAZAUSKAS 2001). This difficulty in distinguishing agriculturally- and non-agriculturally-induced nitrate pollution has affected policy on designation. If the discrete zones approach is chosen, more accurate surface water monitoring networks are required to satisfy the European Commission, compared to the scenario where the whole country is appointed as vulnerable (VALATKA 2001). By developing an Action Programme for the whole territory, monitoring and administration costs are lower, although the costs for applying environmental measures to agriculture are higher. The costs to agriculture are higher because regulatory instruments apply to all farmers rather than just those in a prescribed NVZ.

Estonia, *Latvia*, the *Czech Republic*, *Hungary* and *Slovakia* have followed the discrete zones approach. In Slovakia, approximately 20% of agricultural land will be effected by the proposed NVZs. *Lithuania* has designated its whole territory. Progress has been slower in *Bulgaria* and *Romania*, while *Poland* initially argued that it was not necessary for it to designate

NVZs, but it is being pressed to do so by the European Commission. It is likely to follow a discrete zones approach.

Table 7.4: Progress on Implementing the Nitrate Directive

	Details
Estonia	Two NVZs established. Nitrate Directive taken into account in national Water Law (introduced 1994; last revised 2002).
Latvia	NVZs have been proposed based on risk assessment of eutrophication (GIS mapping).
Lithuania	Action program adopted in 2002, implementation is scheduled upon accession to EU in stages: stage I implementation measure will target all large-scale farms (150-300 animal units) lasting 1-4 years; stage II, lasting 5-8 years, will focus on the farms with more than 10 animal units.
Poland	New Water Law introduced. Poland initially argued that due to the low application of nitrogen fertilisers and the low livestock density there is no need for designating NVZs, but is being pressed to do so by the European Commission. On 31.12.2002, the Ministry of Environment issued a new Regulation on "criteria for designating waters sensitive to pollution by nitrates from agricultural sources" (Dz. U. 02.241.2093).
Czech Rep.	a) NVZs identified and respective governmental decree (designating NVZs) is about to be issued. b) No specific investment program is available at the moment. In SAPARD, there is a sub-priority concerning nitrates, however, only with a small budget. In SOP, there is no specific investment priority for improvements of on-farm slurry storage, however, it is listed in the (recommended) investment areas. c) The nitrate directive (the Czech Government Decree) will be incorporated into (based on) the Law on Water protection.
Slovakia	NVZs cover about 20% of agricultural land. New Water Act (2002) transposes about 84% of the Directive. Expansion of administrative agencies required for effective monitoring and enforcement. Action programs for NVZs planned for 2004, full implementation of the directive planned for 2008.
Hungary	NVZs designated (153 towns and villages out of 3,135). Government Action Plans introduced since 2002, new restrictions on animal farms and adoption of Code of Good Agricultural Practice.
Slovenia	Nitrate Directive is implemented on the basis of two regulations: a) Regulative on limits, warning and critical emission value of dangerous substances in soil (68/1996) and b) Good agricultural practices (34/2000).
Romania	Governmental Decision no. 964/2000 for the approval of the Action Plan for protecting water against pollution caused by nitrates from agricultural sources is designed for implementing the Nitrate Directive. In order to implement the Action Plan, a commission with experts of the Ministry of Waters and Environmental Protection, Ministry of Agriculture, Food and Forestry and Ministry of Health will be established. The designation of NVZs will be made this year (2003).
Bulgaria	Regulation introduced in 2001 governing the prevention of nitrate induced water pollution. Related to Water Act (2000). The Ministry of Environment and Water designates NVZs.

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

In all countries, the management of animal waste has to be improved in order to comply with the nitrate directive. For example, in *Poland*, the main problems are related to the lack of storage facilities in a relatively high number of small farms, the poor technical condition of existing facilities and insufficient storage capacities. Within the program "Environment protection in rural areas" (2000-2002), conducted by the National Fund for Environmental Protection and Water Management, investments in facilities for the storage of animal wastes in a group of 1,200 farms have been made. The objective was to plan, construct and assess the effectiveness of investments in slurry tanks and dung (solid manure) plates, allowing the storage of animal wastes for at least 4 months. The total cost of the project conducted in three northern regions was about 16 million USD, of which 25% was farmers' own contribution. The National Fund estimates that up to 700,000 farms require complete or partial investments in animal waste storage facilities. However, according to the Polish country experts, this figure seems to be highly overestimated. Under the new law on building construction, introduced in 1993, all newly established buildings for livestock must be equipped with adequate animal waste storage facilities. This improves the situation, especially in larger farms investing in the livestock sector. In addition, it is likely that the existing trend of specialisation and increasing scale of production will lead to a greater livestock concentration in a smaller number of farms.

In *Lithuania*, at the end of 2001 there were 1,815 farms where livestock concentration exceeded the EU established maximum norms (10 livestock units/1 ha). These farms account for about 1% of all livestock held on farms in the country (20% of all cattle). Nitrate problems are higher in the centre of Lithuania and lower in the western and eastern regions where conditions for farming are less favourable than in the centre. Fewer problems are caused by pig farms, since their concentration is not as high as cattle farms. Large specialized pig production units with high livestock density usually have sufficient reservoirs for slurry and follow environmental protection requirements. The main implementation problem is seen in the substantial on-farm investment required. Depending on the size of animal herds, the establishment of slurry cleaning facilities requires additional investment in the range of 0.77 - 0.83 thousand Lt (EUR 222-240) and 1.63-1.88 thousand Lt (EUR 471-543) per livestock unit for construction of slurry tanks. Under the Lithuanian SAPARD programme, up to 45% of costs incurred in establishing or reconstructing animal waste management facilities is reimbursed by public funds. For *Latvia*, the total investment required for the improvement of manure storage in NVZs is estimated to be about EUR 27 to 30 million. For *Slovakia*, the financial implications were assessed via a Danish EPA project on Integrated Approximation Strategy in the Water Sector, which indicated that about EUR 612 million were to be invested in manure storage and farming equipment during the period 2001-2035.

In *Hungary*, in NVZs, farms keeping more than 50 livestock units have to comply with good agricultural practice from 2006, smaller ones from 2010. Outside NVZs, the respective years are 2010 and 2014.

As part of implementing the Nitrate Directive, each new Member State should prepare a Code of Good Agricultural Practice (CGAP). This code should outline the time and circumstances during which manure may be spread, the storage and spreading technology and application norms for different crops. To reflect varying climatic and soil conditions, CGAPs differ between countries – for example, over the length of the required period for the storage of manure. Adherence to the CGAP is mandatory within NVZs and can be implemented on a voluntary basis outside the NVZs. Every current Member State has prepared a CGAP.

Table 7.5 summarises the information contained within expert questionnaires on progress made on preparing CGAPs. Most acceding countries have finalised and published codes. In *Bulgaria* and *Romania* CGAPs are still in preparation. The Bulgarian CGAP is scheduled to be published by the end of 2003, and in Romania a first version has be prepared by the Ministry of Waters and Environmental Protection and the Research Institute for Social Science and Agro-chemistry. *Latvia* was one of the first new Member States to finalise and publish its CGAP. In preparing the Latvian code, bilateral assistance was provided from the Danish Agricultural Advisory Service, which worked in co-operation with the Latvian University of Agriculture. The Danish Environmental Protection Agency, the Ministry of Agriculture of Latvia and the Latvian Environmental Protection Fund financed this project. In the *Czech Republic*, a CGAP is available in the form of verifiable standards which are used in current agricultural policy (Government decree 505/2000 and its updates on multifunctional agriculture). However, a user-friendly publication has not been issued and it is unclear whether the Ministry of Agriculture will do so. In Slovakia, by contrast, the Ministry of Agriculture is planning training and educational programmes for all farmers to promote its CGAP during 2003.

Table 7.5: Preparation of Code of Good Agricultural Practice

	Code finalised and published	Date published, agents responsible for preparation
Estonia	Yes	Published in 2001 by Ministry of the Environment, approved by Producers' Union and Estonian Farmers' Union.
Latvia	Yes	Published in 1999. Prepared by Latvian University of Agriculture in co-operation with experts from Danish Agricultural Advisory Service.
Lithuania	Yes	Published 2002. Prepared by the Ministry of Agriculture, the Institute of Water Resources and the Agricultural University.
Poland	Yes	Published in 1999. Prepared by the Institute of Soil Sciences and Fertilisation (IUNG Pulawy) for the Ministry of Agriculture.
Czech Rep.	Only in form of verifiable standards	Unclear whether Ministry of Agriculture will publish a popular/user friendly code.
Slovakia	Yes	Published 2002 by the Ministry of Agriculture.
Hungary	Yes	Published April 2001.
Slovenia	No	
Romania	No, in preparation	A first version has been prepared. Ministry of Waters and Environmental Protection and Research Institute for Social Science and Agrochemistry.
Bulgaria	No, in preparation	Scheduled to be published by end of 2003, preparation by Ministry of Agriculture and Forestry.

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

7.4 Monitoring Agricultural Soils/Soil Testing

Table 7.6 summarises the information garnered on organisational structures for monitoring and testing agricultural soils. Facilities and institutions exist in each acceding country, although there are significant variations in their operating structure.

Table 7.6: Organisational Structures for Monitoring Agricultural Soils/Soil Testing

	Details
Estonia	Managed by Estonian Control Centre of Plant Protection (Dept. of Soil Monitoring).
Latvia	State Land Service responsible for soil monitoring.
Lithuania	Specialised laboratories and monitoring stations, National Soil Testing Laboratory.
Poland	Conducted by Stacja Chemiczno-Rolnicza (Agro-Chemistry Station) which co-operates with Institute of Soil Science and Fertilisation (IUNG) in Pulawy and with other research institutions as well as with Extension Service Centres (ODR's). 17 regional branches. Monitors nitrate fixation in soils. Prices per tested sample: macro-nutrients (P, K, Ca) approx. EUR 2, micro-nutrients approx. EUR 6, heavy metals approx. EUR 38, N-min app. EUR 6.
Czech Rep.	The Central Institute for Supervising and Testing in Agriculture (UKZUS) monitors/surveys the contents of nutrients and toxic residuals. The Research Institute for Melioration and Soil Protection (VUMOP) conducts research on long-term changes in soil fertility and quality.
Slovakia	Soil Science and Conservation Research Institute.
Hungary	Soil Protection Authority is a network of phyto-sanitary and soil protection stations under the supervision of the Ministry of Agriculture.
Slovenia	In field and laboratory testing by (a) Centre for Soil and Environmental Sciences of the Biotechnical Faculty of the University of Ljubljana; (b) Centre for Health Care (Zavod za zdravstveno varstvo) and (c) Agricultural Institute of Slovenia (Kmetijski inštitut Slovenije).
Romania	The Institute of Agrochemical and Soil Studies, together with 37 county offices for pedological and agrochemical research, monitors soil quality. Investigations are conducted in 942 points, at national level, out of which 670 are agricultural points and 272 forestry points; detailed analysis of the degradation points.
Bulgaria	Conducted by: (a) The Executive Environmental Agency of the Ministry of Environment and Water; (b) The Service of Soil Resource of the Ministry of Agriculture and Forestry and (c) The Institute for Soil Science 'N Poushkarov'

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

In *Hungary*, the Soil Protection Authority is comprised of a network of phyto-sanitary and soil protection stations, which are under the supervision of the Ministry of Agriculture. There

are obligations on operators of land in excess of 20 ha concerning soil testing. Soil tests are required when the branch of cultivation is altered and every five years soil acidity and the presence of common elements should be measured. Every ten years, the physical consistency and the structure of microelements should also be monitored. The costs are borne by operators.

The activities of many soil testing facilities were disrupted during transition as government support contracted in real terms. For example, in *Latvia* the State Land Service is responsible for soil monitoring. Soil mapping in Latvia commenced in 1959. A survey of soils was conducted every five to seven years to monitor the fertility of agricultural soils and the information obtained was used for the production of soil maps (scale 1:100,000). In 1992, this soil-monitoring programme was stopped on costs grounds. Soil testing is now provided for farmers on a paid for service basis. However, a new national Soil Monitoring programme was instituted in 1992. The main objectives of the programme are to obtain information about Latvia's soil regarding its physical, chemical and biological properties, erosion and pollution, soil productivity and quality. In *Romania*, all state agricultural research centres are also operating under severe financial limits and this has curtailed their activities.

In *Slovakia*, monitoring of agricultural soils is a part of a three level system: i) whole area (flat) monitoring, ii) regional monitoring and iii) local monitoring. The monitoring system is divide into ten partial monitoring systems, of which one is devoted to soils. The Soil Science and Conservation Research Institute has computerised soil databases and geographical information systems. The Central Control and Testing Laboratory serves farmers on request (costs are borne by farmers).

7.5 Protected Areas

A large proportion of land in the CEECs is designated as protected. Based on data supplied in expert questionnaires for all acceding countries except Estonia and Slovenia, in total around 15.6 million ha are designated according to IUCN (World Conservation Union) categories (see Table 7.7). Over 12,800 different sites are identified, and by land coverage, the most important categories are nature protection areas and landscape parks. National parks account for approximately 1.7 million ha and biosphere reserves 0.9 million ha.

Table 7.7: Protected areas in the CEEC-10 except for Estonia and Slovenia

Category	Number	Area (1,000 ha)
National Parks	253	1,736
Biosphere reserves	1,748	902
Landscape parks	230	5,004
Nature protection areas	2,308	7,763
Natural monuments	8,293	180
Total	**12,832**	**15,586**

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Annex 2 of this chapter provides a more detailed breakdown between countries. *Poland* ranks highest in terms of both absolute land area and protected areas as a percentage of total national area. In *Poland*, approximately 32.5% of the country is designated as a protected area, with nature protection areas being the most common designation. In *Lithuania*, *Slovakia*, *Latvia* and the *Czech Republic*, a significant proportion of the country is designated as protected (23.4%, 19.4%, 15.8% and 15.5%, respectively), while in *Hungary, Slovenia, Romania* and *Bulgaria* it is a rather low share of 8.8 to 4.6% of the national area. The average size of nature protection areas in *Hungary* is approximately 179 ha, compared to an average size in *Poland*, *Latvia* and *Slovakia* of 17,711 ha, 907 ha and 371 ha, respectively. The largest national parks in terms of average size are in *Latvia* where three parks collectively account for 161,000 ha.

In terms of average size and absolute area covered, natural monuments are the smallest category.

Table 7.8 details the trends in the amount of land devoted to protected areas during the last five years. While accurate data is not available for all countries, most states have witnessed an increase in the amount of land being protected (*Estonia* is the only case of no significant change). In terms of the percentage change in the coverage of protected territories, the largest rises have been observed in *Latvia* and *Poland*. Only minor increases are reported for the *Czech Republic* and *Slovakia*. While there has thus been an increase in the amount of land under designated status, most national parks in the region have their origin in the socialist era. 'Command and punish' measures predominate as a means for protecting designated areas.

Table 7.8: Trends in the amount of land devoted to protected areas during the last five years

Country	Reported Information
Estonia	No significant changes.
Latvia	Since 1990, protected territory area has increased by one-third. Most new territories established between 1997-2000.
Lithuania	Amount of protected land has increased slightly.
Poland	Between 1995 and 2000, the area of national parks rose by 13.3%, biosphere reserves 23.6%, landscape parks 26.7%, nature protection areas 23.4%, and natural monuments 302%.
Czech Republic	Only slight change. One new national park (Czech Switzerland) was established (72 km^2) and a new landscape park (*Cesky raj*) proposed.
Slovakia	Protected area as per cent of total land area rose from 23.2% in 1996 to 24.8% in 2000. 2 new national parks.
Hungary	The area of national parks has increased by 10% as one new park was established in 2002 from landscape park area.
Romania	Between 1998 and 2003, the amount of land classified as protected rose from 1.23 mill. ha to 1.29 mill. ha.
Bulgaria	Amount of protected land has increased.

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

While each new Member State has protected land, ownership, management and the degree of protection varies enormously. For example, in *Hungary*, most protected areas are currently under state ownership, with agricultural areas being leased to farmers based on short-term tenancies (ZELLEI ET AL. 2003a). The directorates of the National Parks set rental values and provide indirect support through preferential rents for farmers renting land in designated areas. These agencies also enforce restrictions on farmers and can charge penalties for the violation of rules. By contrast, in most other new Member States, the majority of protected land is not under state ownership. There is little information on restrictions in the protected area, e.g., limiting the use of fertilisers and pesticides and whether farmers are compensated for income losses.

In the *Czech Republic*, there is an interesting aspect regarding the provision of "environmental goods" by nature agents. Large scale protection of landscape and biodiversity has been encouraged by subsidies from the budget of the Ministry of Agriculture. Initially, (1997-2000) it was support to landscape management; in 2001, it was replaced by cross compliance associated with compensations in less favoured areas and areas with environmental restrictions. The primary objective of the programme was to avoid land abandonment by offering income incentives, while environmental objectives were supposed to be achieved through cross compliance. The original programme was not restricted to farmers. Therefore, nature agents (mowing and hay harvesting companies) emerged, who, in contrast to farmers, are primarily oriented to the production of environmental goods. However, the Ministry of Agriculture later restricted eligibility only to farmers by requiring a minimum livestock unit (0.15) per hectare. Farmers and their associations had argued against nature agents that otherwise, funds deter-

mined to support farm income flowed out of the sector. Furthermore, the sustainability of the provision of environmental goods by nature agents was questioned, since they often lacked local knowledge and commitment to provide service if the programme conditions and budget continued to vary from year to year.

7.6 Organic Farming

The area devoted to organic production in the new Member States increased rapidly during the late 1990s, albeit from a very small base. This growth has been spatially uneven as detailed in Table 7.9 and Table 7.10. Table 7.9 presents information on the number and average size of certified farms and Table 7.10 details similar information for farms in conversion.

Based on expert reports, certified organic farms account for around 341,488 ha or 0.6% of the total agricultural area in the acceding countries. This compares against a figure for the EU-15 of 4.4 million ha of organic land in 2001 (FIBL 2002). By land area, the largest coverage of organic farming is in the *Czech Republic* and *Slovakia*, where the area devoted to organic farming is growing, but at a slower rate than other new Member States. The average size of organic farms in these two countries is much higher than the CEECs' average of 92 ha, with 595 ha in *Slovakia* and 328 in the *Czech Republic*, which reflects the nature of commercially-orientated farming in these two countries where large corporate farms still predominate. In 2002, organic farming (including areas in conversion) accounted for 5.4% and 2.0% of total agricultural land in the *Czech Republic* and *Slovakia*, respectively. In 2001, the respective EU average was 3.2%, with seven Member States being above this average – i.e., Austria was 11.3%, Italy 8.0%, Finland 6.7%, Denmark 6.5%, Sweden 6.2%, the United Kingdom 4.0% and Germany 3.7% (FIBL 2002).

Table 7.9: Current state of organic farming (certified farms)

	Year of data	No. of farms	Average size (ha)	Total cultivated land (ha)	Total cultivated land (% of total ag. Area [1])	Trend for organic area
Estonia	2002	167	53	8,710	3.2	Increasing
Latvia	2002	300	50	17,000	0.7	Increasing
Lithuania	2002	393	21	8,780	0.3	Increasing (2002/2001: +36% both in no. of farms and cultivated land)
Poland	2001	669	19	12,862	0.1	Increasing
Czech Republic	2002	473	328 [2]	155,144 [3]	3.6	Increasing, but at a slower rate
Slovakia	2002	84	595	49,999	2.0	Very slight growth
Hungary	2002	538	101	54,497	0.9	Increasing
Slovenia	2002	412	13	5,521	1.1	
Romania	2001	610	47	28,800	0.2	Increasing
Bulgaria [4]	2000	50	3	175	0.003	Increasing
Total		**3,696**	**92**	**341,488**	**0.6**	

Notes: [1] Total agricultural area in 2001, Estonia 2000 (FAOSTAT 2003). [2] Average for convert + certified. [3] Calculated with the average size mentioned. [4] Estimated.

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

In terms of number of holdings, based on expert data there are nearly 3,700 units. This compares to around 130,000 certified organic holdings in the EU-15 in 2000 (EUROPEAN COMMISSION 2000). Regarding the new Member States, *Poland* records the highest number of certified organic farms (669), followed by *Romania* (610) and *Hungary* (538). The average size of organic farms in these three countries is significantly above average for all farm holdings. Overall, organic farming is least developed in *Bulgaria*, where only an estimated 175 ha of land is operated by certified organic farms.

Significantly less data is available on the number of holdings that are being converted to organic production. For the six countries for which data was available, there is a combined total of 3,516 holdings that are currently under conversion. This currently exceeds the number of certified farms and indicates the rapid increase in number of organic farms. In terms of number of holdings, the highest figure is again recorded for *Poland* (1,109), followed by *Slovenia* (738). Most countries are recording a strong increase in the number of farms that are in conversion.

Table 7.10: Farms and area in the process of conversion to organic farming in the new Member States

	Year of data	No. of farms	Average size (ha)	Total cultivated land (ha)		Trend
				(ha)	(% of total ag. Area [1])	
Estonia	2002	418	53	21,842	1.5	Strong Increase
Latvia	2002	550	50	26,000	1.0	Increasing
Poland	2001	1,109	23	25,870	0.1	Strong Increase
Czech Republic	2002	244	328 [2]	73,472	1.7	Increasing but at a slower rate
Hungary	2002	457	108	49,176	0.8	Increasing
Slovenia	2002	738				
Total		**3,516**				

Notes: [1] Total agricultural area in 2001, Estonia 2000 (FAOSTAT 2003). [2] Average for convert + certified.
Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

The increases in the number of organic farms, and those under conversion, are being prompted by programmes that encourage conversion to organic farming in the new Member States. All countries, apart from *Bulgaria*, have some sort of programme, although the degree of funding varies significantly between states (see Table 7.11). In terms of payments per ha, the most generous scheme is available in *Slovenia*. There, direct payments of EUR 349 per ha for arable land, EUR 173 per ha for permanent grasslands and EUR 449 for vegetables grown outdoors per ha are available under an instrument of SKOP (Slovene Agricultural Environmental Programme). However, it should be noted that out of the CEECs, the level of support for conventional farming is highest in real terms in *Slovenia*, and the superior economic viability of organic farming is still questionable (SLABE 2000).

Many of the support programmes for organic production are relatively new. For example, in *Poland*, payments for farms in conversion and certified farms have only been available since 2000. As in most Member States, payments are more generous for farms under conversion than they are for certified holdings – for example, in permanent grasslands the rate is EUR 34.90 per ha for farms in conversion (year preceding certification) and EUR 27.90 per ha for certified farms. The respective figures for vegetables are EUR 139.50 and EUR 104.70 per ha. This scheme offers far more financial resources to farms than the programmes available in *Estonia* and the *Czech Republic*. Tensions surrounding the differential funding of organic farming have surfaced in the EU-15, and such difficulties are also likely to emerge between the acceding countries. In *Latvia*, the Ministry of Agriculture has paid subsidies for organic farming since 1998. In 2002, EUR 173,000 were spent for this purpose.

The basic lines of development for organic farming in *Slovakia* through the year 2005 are laid down in the Concept of Organic Farming in Slovakia, approved by the Government in 1996. The main priority is to increase the area of land under organic farming to 100,000 hectares (about 4% of the total agricultural land).

Table 7.11: Programmes to encourage conversion to organic farming in the new Member States

	Details
Estonia	In 2001, support applied to 315 producers covering 17,853 ha. Total amount paid was EUR 485,772. Unit value of EUR 14.7 per ha.
Latvia	Subsidies paid since 1998. In 2002, value approximately EUR 173,000.
Lithuania	Direct payments on a per ha base, compensation of 75% of certification fees, financing of research, consultancy free of charge, free training courses, free info dissemination, special training at the Agricultural University, special marketing programmes, ecological fairs, internationally accredited export certification by "Ekoagros". Annual financial allocation: EUR 0.58-0.87 million) from the agricultural budget to direct support of ecological farming. These programmes began in 1993, and the most recent programme,"Development of sustainable and ecological farming", was adopted in 2003.
Poland	Payments for farms in conversion and certified farms since 2000. For permanent grasslands, EUR 34.90 per ha for farms in conversion (year preceding certification) and EUR 27.90 per ha for certified farms. The respective figures for vegetables are EUR 139.50 and EUR 104.70.
Czech Rep.	EUR 4.9 million allocated in 2001. Premium paid when farmers commence conversion. In 2002/2003, the per hectare premium is EUR 65 for arable land, EUR 33 for grasslands and EUR 112 for fruit and vegetable production.
Slovakia	Per hectare payments in conversion period (2 years) for arable land EUR 137.67, for orchards and vineyards EUR 183.6 and for vegetables EUR 229.45. After conversion for arable land the payment is EUR 68.80 per ha, for orchards and vineyards EUR 91.89 per ha, and for vegetables EUR 114.72 per ha. For permanent grasslands during the conversion period with >0.35 livestock units per ha, EUR 91.80 per ha is paid, and with ≤0.35 livestock units EUR 36.71 per ha; after conversion, the respective figures are EUR 45.90 per ha and EUR 18.36 per ha. Grassland premiums are reduced by 40% in the case of meadows with only one mowing.
Hungary	Support only given within agri-environmental programmes. In these areas, 90% of the conversion plan of the farm is subsidised. Low density animal keeping on organic grasslands is supported per animal as the following: - Cattle: indigenous race, EUR 40, non indigenous EUR 25 - Pigs: indigenous race, EUR 12, non indigenous EUR 0 - Sheep: indigenous race, EUR 12, non indigenous EUR 6. Support in plant production: - EUR 41-163 per ha for the transition to organic farming - EUR 41-86 per ha for organic farms.
Slovenia	Direct payments of EUR 349 per ha for arable land, EUR 173 per ha for permanent grasslands, EUR 449 per ha for vegetables grown outdoors, EUR 524 per ha for vegetables grown indoors, EUR 524 per ha for specific orchards, vineyards and hop fields, EUR 217 per ha for meadow orchards, EUR 173 per ha for permanent grassland and EUR 87 per ha for pastures.
Romania	Some support for local initiatives through SAPARD and pilot farms established.
Bulgaria	None

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

In *Bulgaria* and *Romania*, the institutional framework for supporting organic production (certification, marketing, etc.) is still poorly developed, which is an impediment to the growth of the sector. In expert reports, the main constraints identified were a lack of local demand for organic produce, the widespread perception amongst consumers that most conventional production is 'organic', given the low intensity of production and a lack of experience regarding inspection, certification and production. Several reports noted a rather confused institutional framework governing inspection and certification as a major impediment.

7.7 Agri-environmental programmes under SAPARD

With the exception of Slovenia, all CEECs included an agri-environmental component in their SAPARD programmes (see Table 7.12). *Slovenia* chose not to include such a component in its SAPARD programme due to its limited overall budget and because it had prepared a na-

tionally financed agri-environmental programme[10]. Given the limited resources available under SAPARD, it was stipulated that agri-environmental measures should be confined to specific pilot areas so that "such actions shall have the objective of developing practical experience of agri-environment implementation at both the administrative and farm levels" (EUROPEAN COMMISSION 1999). Under the initially agreed programmes, agri-environmental measures were to account for EUR 89 million, representing 2% of the Community's overall contribution to SAPARD (EUROPEAN COMMISSION 2001). The magnitude of the proposed agri-environmental measures as of August 2003 varied significantly between CEECs; it ranged from 1% of the overall SAPARD budget in *Lithuania* to 5% in *Latvia*. However, as detailed in Table 7.12, the implementation of agri-environmental measures has been delayed. By August 2003, only those measures of the *Czech Republic* and *Poland* were adopted by the STAR Committee of the EU.

Table 7.12: State of preparation of the agri-environmental measures under SAPARD (as of 12.08.2003)

	State of preparation	Amount (EU contribution in million EUR)	Share in EU SAPARD budget (%)	Area (ha) of implementation	Pilot areas (number)	Pilot actions (number)	Beneficiaries (number)
Estonia	+	1.210	1%	n.a.	n.a.	n.a.	n.a.
Latvia	+	6.970	5%	35,000	5	5	900
Lithuania	+	2.124	1%	2,740	3	7	n.a.
Poland	++	22.920	2%	15,000	4	19	750
Czech Rep.	++	4.584	3%	5-30,000	5	6	150-200
Slovakia	+	4.500	4%	10,000	5	9	2,000
Hungary	+	11.330	4%	n.a.	n.a.	n.a.	n.a.
Slovenia	No agri-environmental measures included in the SAPARD programme.						
Romania	-	26.571	3%	n.a.	n.a.	n.a.	n.a.
Bulgaria	+	9.000	2%	177,000	3	8	1,100

Note: ++: adopted by the STAR Committee (Committee on Agricultural Structures and Rural Development); +: draft received; -: no draft received.

Source: DIANA (2003).

Table 7.13 summarises the types of agri-environmental pilot actions under SAPARD as of August 2003. The actions which are envisaged in most of the countries refer to the management of biological diversity, semi-natural habitats and special biotopes, as well as of abandoned agricultural and forest land, the stewardship of landscape features and environmentally-friendly production methods. In most of the countries a wide range of pilot actions are planned. The exception is Hungary, where only environmentally-friendly production is included.

Given the lack of implementation it is not possible to present an evaluation of outcomes. The main reasons for the delays highlighted in the country reports are the complicated nature of the measures (*Bulgaria*, *Poland*), drawn out negotiations with the European Commission preceding final acceptance of the programme (*Hungary*, *Poland*, *Romania*), a shortage of practical experience and a lack of clear and measurable indicators (*Latvia*). Due to these delays, the objective of capacity building for the practical implementation of agri-environmental schemes has not been realised as effectively as initially expected. Agri-environmental measures were not prioritised for early implementation and the postponements have meant that deficiencies in the practical experience of designing, managing and enforcing agri-environment schemes have not been ameliorated.

[10] This program includes measures to reduce livestock density, to support organic farming, preserve wild life habitats and to protect groundwater areas.

Table 7.13: Type of agri-environmental pilot actions under SAPARD (as of 12.08.2003)

	Estonia	Latvia	Lithuania	Poland	Czech Rep.	Slovakia	Hungary	Slovenia	Romania	Bulgaria
Environmentally-friendly production (includes crop rotation, erosion control practices, etc.)	+			+	++	+	+			+
Integrated farming or low-input systems		+	+			+				
Nutrient management			+	+						
Organic farming (arable crops, permanent crops, livestock)			+			+			-	+
Extensive grassland (extensification of grazing systems)				+	++	+				+
Management of wetlands and ponds		+			++	+				
Demonstration farm				+						+
Genetic resources (endangered local breeds/varieties) : farm animals, cultivated crops						+				+
Protection of rivers (buffer strips) and field margins		+	+	+	++					
Management of biological diversity, semi-natural habitats, special biotopes	+	+	+	+	++	+			-	+
Stewardship of landscape features	+	+	+	+					-	+
Management of abandoned agricultural/forest land			+	+		+			-	+
Conversion of arable land to extensive grazing				+	++	+				+

Note: ++: adopted in STAR Committee; +: draft received; -: in SAPARD programme no draft received.
Source: DIANA (2003).

In *Romania*, according to the National Plan for Agriculture and Rural Development, agri-environmental measures are required to be launched only in the third year of the program. In *Estonia*, an agri-environment support scheme was introduced in two pilot areas (Kihelkonna and Lümanda parishes in Saare county and Palamuse parish in Jögeva county). The Agricultural Registers and Information Board (ARIB), founded in 2000, is responsible for administering the scheme. The amount of agri-environment support aid paid to the 64 participants totalled EUR 165,234. In *Poland*, PHARE and national funds have been used to implement pilot projects supporting the protection of biodiversity, the maintenance of landscapes and organic farming, as well as afforestation in four regions (the basins of the rivers Narew and Bierbrza, basin of river Warta, Warmia and Mazury region, Podkarpacie).

The agri-environment component of the *Latvia*n new (second) Rural Development Plan for the programming period 2004 to 2006, which the Ministry of Agriculture is elaborating, contains five sub-measures: i) the development of organic farming, ii) the preservation of biodiversity and rural landscapes, iii) environmental-friendly farming for limiting agriculturally-induced water and soil pollution, iv) preserving the genetic resources of farming animals and v) preserving the genetic resources of plants.

In *Slovakia*, agri-environmental measures were originally planned to be implemented in five pilot regions between 2002 to 2006. However, none of these pilot projects started until spring 2003 since the environmental scheme (see Table 7.14) was not accredited.

Table 7.14: Planned agri-environmental measures other than support to organic farming in Slovakia

Measure		EUR/ha or head
Basic scheme	arable land permanent grassland	35.00 39.78
Erosion protection on arable land	sowing practise size of field	65.85 29.32
Erosion protection in vineyards	slope up to 20% 21% - 40% above 40%	48.19 57.36 68.83
Erosion protection in orchards	Slope up to 20% Above 20%	48.19 57.36
Conversion of arable land into grassland		97.81
Protection of biosphere points and natural permanent grassland		123.70
Non-forest wood vegetation	On arable land On perm. grassland	152.88 85.67
Protection of water and wetlands biosphere points (biotopes)	On arable land On perm. grassland	128.10 74.34
Breeding and sustainability of endangered animals	Ewe Mare Goose Duck Hen	24.09 450.00 2.07 1.84 1.38

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

7.8 Conclusions

During the socialist era, agri-environmental issues were typically not a political priority and several Ministries of Agriculture failed to recognise that farming could be a major polluter. Ministries of the Environment tended to be politically weaker than their agricultural counterparts and co-operation between them was often poor. During the initial years of transition, agri-environmental issues received even less attention as the intensity of production fell. The latter was unfortunate, as reducing agri-environmental assessments to debates over intensification is inadequate.

The late 1990s saw the introduction of a raft of new environmental laws or revisions to existing regulations. These developments were largely stimulated by a need to adopt the *acquis communautaire* rather than domestic pressures. While legal harmonisation has progressed, the ability to enforce and monitor new regulations has often lagged behind. In states where restitution policies have been implemented, the 1990s witnessed a large increase in the number of holdings, creating an extremely diverse set of actors with contrasting farm sizes, degrees of specialisation and levels of education. This represents a major challenge to both extension and enforcement agencies. Local capacity building remains a major challenge.

In particular, the adoption of the Nitrate Directive has been controversial and many of the problems that have been reported in current Member States are being replicated in the new Member States. The directive appears to give quite a lot of freedom to individual states in terms of implementation, providing this can be justified to the European Commission. Therefore, several have tended to interpret the Directive to suit their needs and not implement it as rigorously as the European Commission desires, so that, as with current Member States, complete implementation will probably come about through an iterative process and will take several years (ZELLEI ET AL. 2003b).

All of the new Member States have a proportion of their agricultural land designated as protected. Many of these designated areas have their origins in the socialist era, when they were regulated largely by 'command and punish' measures. Several countries, such as the *Czech*

Republic and *Slovenia*, have begun to experiment with financial incentives and more market-based measures to promote environmentally-friendly farming practices. All but one country included such measures in their SAPARD plans. Unfortunately, the delay in the implementation of envisaged agri-environmental measures under SAPARD has inhibited the growth of practical experience in administering new policy tools.

The areas devoted to organic farming have grown throughout the region, albeit from a very small base. The degree of support for conversion varies significantly between the CEECs, with *Bulgaria* and *Romania* lagging behind. The latter two states have struggled to build administrative capacity in agri-environmental matters. In contrast, some other CEECs, such as *Slovenia*, have recognised that second pillar measures will be of vital importance to the survival of their agriculture; greater domestic support and a longer history of capacity building in this area has reinforced this.

For *Poland*, the country experts emphasise that the Polish environmental legislation is already fully harmonised with that of the EU, corresponding with international treaties and agreements ratified by *Poland*. However, it is stated that implementation lags behind the requirements and expectations mainly due to insufficient national funding. Country experts expect that after the accession to the EU, additional funding provided by rural development programs, the sectoral operational program and structural funds will lead to a significant progress in implementing the existing environmental legislation. Most likely, these findings for Poland also hold for other new Member States.

8 POLICY INSTRUMENTS

As outlined in chapter 4, the agricultural sector considerably contributes to income, and particularly to employment, in rural areas (see section 4.4 with Figure 4.2). For those rural areas, however, which are relatively highly industrialized, e.g., in the Czech Republic, Hungary, Slovakia, Poland and Estonia, agriculture is less important in terms of income and employment. In contrast, agriculture is far more important and the main employment sector in Bulgaria and the rural areas of Romania, Lithuania, Poland, Slovenia and Estonia. Currently, agricultural income heavily depends upon classic market and price policy measures, and changes in these policies will affect total income in rural areas significantly. Before presenting the different policy measures linked to supporting rural development, this section outlines the history of agricultural market and price policy since the beginning of transition.

Agricultural policies in the CEECs have gone through several phases since 1989. To simplify, these are characterised as follows: In the first phase, agricultural policy regimes were liberalized and subsidies abolished. Consumer prices dramatically increased, while real incomes often declined, and domestic demand fell. Foreign market access deteriorated as the traditional agricultural export markets in the former Soviet Union dwindled due to a lack of hard currency and because Western countries remained closed to CEECs agricultural exports. Farm input prices greatly increased relative to producer prices, causing a decline in agricultural terms of trade and renewed demands for government support.

A second phase introduced, or reintroduced, policy interventions in the agricultural sector to protect consumers and producers against negative real income effects of agricultural and macroeconomic reforms. Due to a lack of experience, governments and their administrations in the emerging market economies reacted to unanticipated policy effects by sudden and frequent policy changes, thereby adding to the uncertainty induced by general economic reforms.

In a third phase, CEE governments started to formulate comprehensive long-term-oriented agricultural policies. Here, most applicant countries in CEE installed 'Common Agricultural Policy (CAP)-style' agricultural policy instruments such as guaranteed prices, production quotas, export subsidies, and (variable) import levies. However, the introduction of these CAP-style policies had been taken place more or less on an ad-hoc approach. In some cases, CEECs' governments intervened on markets where the EU provides only limited support to EU-farmers, e.g., pork in Poland.

Since then, agricultural policies in the CEECs have undergone various degrees of modifications, both to comply with international agreements (bi- and multilateral trade agreements) and to bring the level and kind of intervention more in line with those of the EU. Most of the new Member States have changed their policy mix to include more direct payments and other subsidies with somewhat less reliance on market price support.[11] Bulgaria, which until recently discriminated against its agricultural sector, significantly modified and liberalised its agricultural policy regime. Again, this adaptation of CAP-style policies was not done systematically. In some cases, governments neglected the fact that their budget and markets did not have sufficient depths to maintain these intervention policies, e.g., dairy policies in the Czech Republic. In many cases, suppliers of agri-food products faced markets with limited export possibilities and limited regional integration. In this situation, CEECs' farmers faced rapidly changing policies in highly volatile markets bearing high market and policy risks. As a consequence, this unstable political environment affects many elements of farm behaviour, e.g., investments with respect to collaterals and the eligibility of credits. As a long-term effect, there is only a slow movement towards competitive farm structures.

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[11] A detailed overview on agricultural policies in the new Member States from 1997 to 2001 is provided in NETWORK OF INDEPENDENT AGRICULTURAL EXPERTS IN THE CEE CANDIDATE COUNTRIES (2003).

Even though governmental intervention substantially expanded since the beginning of the 1990s, the level of protection has remained modest compared to the EU and most member countries of the Organisation for Economic Co-operation and Development (OECD). On average, CEE protection levels measured by the Percentage Producer Subsidy Estimates (% PSE) were around 16% in 2001, with large variations between the countries (OECD 2002a, 2002b). The corresponding levels for the EU are 35%, and for the OECD countries 31%, on average.

Previous years have witnessed a shift in the emphasis of the Common Agricultural Policy (CAP) towards rural development, food safety, and environmental measures ('second pillar'). This policy change is in accordance with the needs of creating a favourable framework for economic activity in rural areas. Structural and regional development policies are also major tools of governments in the new Member States, and have been at the core of the EU SAPARD programmes. After the accreditation of SAPARD agencies, several programmes have been started in the new Member States which aim at improving farm businesses and the processing and marketing of agricultural and food products as well as infrastructure in rural areas. This chapter considers the evolution of agricultural and other policy instruments relevant for the development of rural areas and profiles recent changes in legislation and policies, drawing on questionnaires completed from the country experts.

The questionnaires focus mainly on the following items:

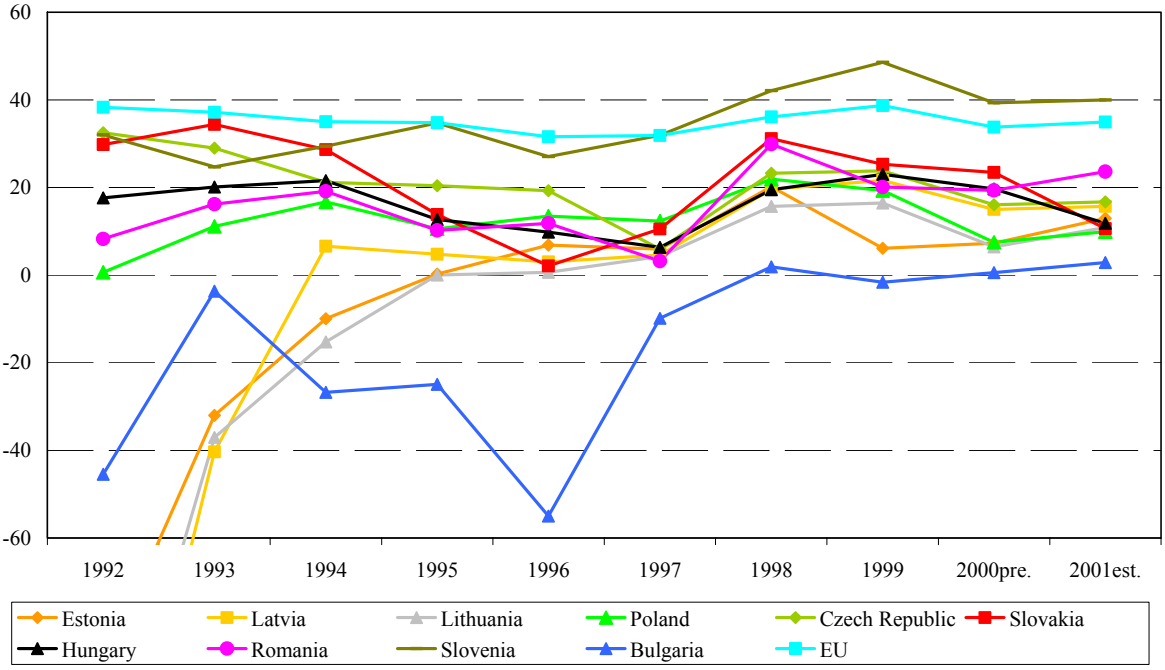
- policy instruments aimed at improving farm businesses (section 8.2);
- policy instruments supporting forestry (section 8.3);
- policy instruments supporting the processing and marketing of agricultural and food products (section 8.4);
- policy instruments aimed at inducing a general improvement of rural areas (section 8.5);
- policy instruments supporting less-favoured areas (section 8.6).

First, however, a brief overview is provided with respect to the extent of harmonisation of agricultural policies in the new Member States towards the CAP by measuring the level of support and the choice of policy instruments.

8.1 Extent of harmonisation of agricultural policies towards the CAP

Since the mid 1990s, most of the EU applicant countries have progressively harmonised their agricultural policies towards the CAP. Figure 8.1 shows the aggregate, percentage PSEs for the new Member States and the EU from 1992 to 2001. Since 1997, only in Slovenia has the level of protection exceeded that of the EU. In 2001, the Slovenian percentage PSE amounted to 40% compared to 35% in the EU. Farmers in the other CEECs have been granted less support than their colleagues in the EU. In 2001, the percentage of PSE in Romania reached two thirds of the EU level, while it amounted to less than half of the EU level in the other new Member States. In Bulgaria, farmers were discriminated against until 2000, and since then have been granted a very low level of support. Figure 8.1 also reveals that the level of support in the new Member States has a tendency to converge.

Figure 8.1: Aggregate % PSE in new Member States and the EU, 1992–2001

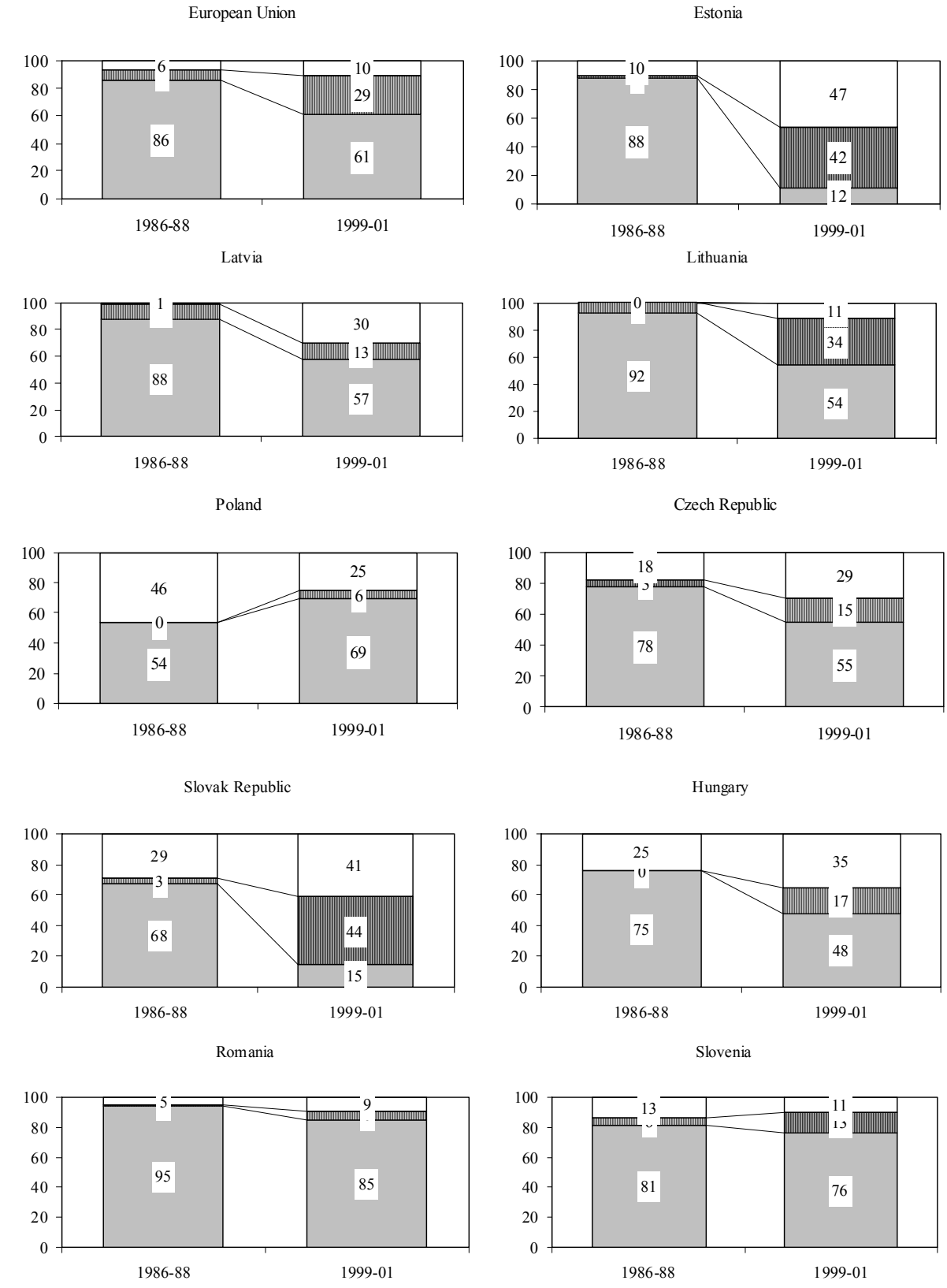


Source: OECD (2002a, b).

During socialist times, agricultural protection in most CEECs was higher than in the EU, (with Poland and Hungary being exceptions) having support levels close to the EU average. However, the instruments for achieving this support were very different. Prices, production, and trade were all determined through direct state controls. In all CEECs, the act of dismantling these instruments of state control and their replacement by taxes, export subsidies and intervention measures led to a sharp decline and a high variability of support levels in the first years of transition. The latter was partly due to the extreme variability of some countries' exchange rates. Since the mid-1990s, the overall level of agricultural protection has converged among the new Member States in the range of 10% to 20%, with the exception of Bulgaria.

At a broad level there has also been convergence in the means of support to farmers amongst the new Member States and between them and the EU. This is illustrated in Figure 8.2. In this diagram, total PSE is decomposed into three parts: market price supports, direct payments, and other measures. The relative shares of these three components in overall PSE are shown for 1986-1988, and 1999-2001 for the EU and the new Member States. The EU itself has seen a significant reshaping of the structure of its support since the mid-1980s, with a large increase in the use of direct payments since the MacSharry and Agenda 2000 reforms, respectively, and a corresponding fall in the share of market price support. Intriguingly, except for Poland, all CEECs shown in Figure 8.2 also reduced their reliance on this latter form of protection and increased the use of direct payments. While with respect to those two elements of protection there has been considerable convergence (measured by the relative shares, not by the total level of support) between agricultural policies in the new Member States and the EU, 'other' support measures are of much greater relevance in six of the nine CEECs, as shown in Figure 8.2. There is a wide range of such 'other' instruments; one important category often used by the new Member States is input subsidies, in particular subsidised credit (see section 8.2). Such measures are part of the second pillar of the CAP.

Figure 8.2: Decomposition of PSE in the EU and the new Member States, 1986-88 and 1999-2001



Source: OECD (2002a, b).

Within the elements of market price support, there have been important differences in the kind (domestic intervention systems, border measures, supply management tools) and level the specific instruments have been applied in the different CEECs and in the EU. In recent years, the process of harmonisation of the kind of instruments utilised in the various markets has been supported by means of the SAPARD programmes.

Table 8.1 summarises the main agricultural policy instruments applied in the new Member States in 2001. It supports the statement that 'CAP-style' policy instruments have been introduced in all new Member States. As Table 8.1 reveals, domestic support is primarily granted through direct payments, usually in the form of area or headage payments. Quite often these payments are targeted to less favoured areas (LFAs) such as in Slovenia, Slovakia and Hungary.

Table 8.1: Summary of the main policy instruments in CEE new Member States, 2001

Country	Market and Price Support	Domestic Support	Credit Programs
Estonia	- No market price interventions - Tariffs and tariff rate quotas - "Double zero" agreement with the EU in 2001 with removal of duties and introduction of tariff-free quotas for sensitive products excluded from the first phase of liberalization and an increase in quota volumes on other products	- Direct payments: (1) area (cereals, flax seed, rape, legumes) and headage payments (dairy cows, beef, ewes and goats), (2) allowances for hardship, (3) organic farming - Subsidies: Land tax rebates, capital investments, fuel tax, liming and afforestation	Long-term interest rate credits and loan guarantees
Latvia	- Tariffs and tariff rate quotas - CMOs (Common Market Organization) introduced in 2001 - Market price regulation: wheat, rye, sugar, milk and milk products - "Double zero" agreement with the EU in 2002 with removal of duties and introduction of tariff-free quotas for sensitive products excluded from the first phase of liberalization and an increase in quota volumes on other products	- Direct payments: area (cereals, pulses, oil seeds) and headage payments (beef, milk) - Subsidies: inputs (insemination, agro-chemicals and lime). - Rebate of fuel taxes - Planned support for semi-subsistence farming and an early retirements scheme	- Long-term interest rate credits and loan guarantees - Partly covering of interest rates for seeds
Lithuania	- Tariffs and tariff rate quotas - "Double zero" agreement with the EU in 2002 with removal of duties and introduction of tariff-free quotas for sensitive products excluded from the first phase of liberalization and an increase in quota volumes on other products - Intervention purchases of wheat (food)	- Direct payments: (1) area payments (wheat, rapeseed, buckwheat, flax and for rye grown on LFA), (2) headage payments (beef cattle) - Subsidies: capital investments, fuel tax	Short- and long-term loan guarantees, subsidies for interest rate guarantee fee and insurance premiums, and loan guaranteed for working capital, investment and purchase of farm land
Poland	- Tariffs and tariff rate quotas - Minimum prices and intervention purchases: wheat, rye, milk - Ad-hoc intervention purchases and selling for others - Price support, production quotas and export subsidies: Sugar - Threshold system for import quantity or price triggering additional import levies: most crops and livestock - Ad-hoc (temporary) import levies: wheat, maize, sugar, pork	- Quality payments for wheat (food) - Subsidies for productivity enhancing inputs and field liming - Fuel vouchers for farmers	Subsidies on loans for inputs
Czech Republic	- Import tariffs and tariff rate quotas - Price regulation: (1) intervention and guaranteed prices for wheat; (2) minimum prices for milk - Intervention buying for beef, sugar, rape-seed - Export subsidies: (1) direct for milk, (2) export credit subsidies for some other commodities, (3) ad-hoc export subsidies - Milk quota system	- Direct payments: area and headage payments (beef cattle, sheep, suckler cows) in LFAs; support for organic farming	Credit subsidies and loan guarantees for both working capital and investment

Country	Market and Price Support	Domestic Support	Credit Programs
Slovakia	- Tariffs and tariff rate quotas	- Direct payments: area and headage payments for LFAs	- Interest subsidies, guaranteed loans and payment of interest
Hungary	- Guidance price system with intervention: milk, beef and pork with subsidies to processors - Minimum and maximum guaranteed prices for: wheat, maize, sugar, beef, pork, milk - Deficiency payments for those not receiving orientation prices - Tariffs and tariff rate quotas - Export subsidies: milk, pork, poultry, wine - Milk quota system	- Direct payments: (1) area payments (2) headage payments (milk cows, beef cattle) - Quality payments for pork - Fuel tax subsidies	- Interest rate subsidies - Capital investment grants - Interest relief for land purchases
Slovenia	- Tariffs and tariff rate quotas - CMOs for milk and milk products, cereals, beef, sheep, goat meat, sugar, fresh fruit and vegetables - No intervention purchases in 2001	- Direct payments: area (wheat, sugar, corn) and headage payments (milk cows, beef cattle and sheep in LFAs) - Input subsidies - Export promotion	Credit subsidies for working capital and investments
Romania	- Tariffs and tariff rate quotas - Import licensing only under preferential tariff quotas - Export licenses only under EU preferential tariff quotas - Export subsidy: wheat, maize, pork and poultry	- Direct payments: area payments per ha arable land limited to registered commercial farms - Input subsidies for certified seeds, artificial insemination, diesel purchase, land reclamation, irrigation and pest control	Subsidized interest: long-term for purchase of machinery funded through the revenues from state farm privatisation. Credits for purchase of live animals and the storage of wheat and barley
Bulgaria	- Import tariffs and tariff rate quotas - Warehouse receipt system for grain - No other market price intervention	- Direct payments (financial support and investment stimulation under numerous programs) - Input subsidies seeds, fertilizers and farm chemicals	Preferential credit for certified seeds, fertilizers and chemicals

Source: NETWORK OF INDEPENDENT AGRICULTURAL EXPERTS IN THE CEE CANDIDATE COUNTRIES (2003), OECD (2001, 2002c), HARTELL AND SWINNEN (2000).

8.2 Policies aimed at improving farm business

Liberalisation, privatisation and restructuring in the agricultural and food sector induced a sharp decline in production and in the performance of agricultural enterprises in the early 1990s. This was accompanied by very low investments in the agricultural sector. High real interest rates, unclear property rights and the lack of collateral, inexperience in negotiating with banks and declining terms of trade discouraged farmers to accept the risk of leverage. Consequently, progress in the modernisation of agricultural enterprises was low. In order to overcome this bottleneck, all governments in the CEEs have granted their farmers credit guarantees and/or interest rate subsidies to improve their access to loans. The following

Table 8.2 provides an overview with respect to the kind and extent of such support provided in the different countries.

Table 8.2: Policies aimed at supporting investments in farm business

Country / year	Type of investment	Kind of measure/ budgetary outlay in 2002, Million EUR	Eligibility conditions for aid
Estonia 2001		- Subsidisation of interest rates: 1.09 - Capital support: 0.39 - Insurance support: 0.03 - Liming support: 0.98 - Melioration support: 1.37 - Environmental support: 0.17 **Total budgetary outlay: 4.03**	- Registration in business register - No tax penalty - Accurate application
Latvia 2002	- Modernisation of agricultural machinery and equipment - Acquisition of high breeding-value animals - Construction and reconstruction of buildings intended for production - Acquisition of equipment and modernisation of buildings for pre-treatment (sorting, storage, rinsing and packaging) of fruits, vegetables and grain - Development of forest tree nurseries	- Support for technical modernisation of agricultural production: 3.07 - Subsidies to the interest payments: 1.62 - Guarantee of interest payments: 0.173 **Total budgetary outlay: 4.87**	- Compliance with national minimum standards regarding the environment, hygiene and animal welfare - Demonstration of economic viability of the farm
Lithuania 2002	- Farm restructuring and modernisation - Quality improvement - Acquisition of quality breeding material (crops and livestock) - Marketing through support to co-operative development - Support to land reclamation system - Farm establishment or expansion - Acquisition of farm land	- Co-financing of measures by the national budget - Subsidisation of interest rate - Granting guarantee for bank loans - Subsidisation of guarantee fee - Subsidisation of asset insurance premium **Total budgetary outlay: 16.2**	- Registered farm - Farm accounting - Young farmer (for higher support ratio) - Bank has to approve business plan
Poland 2002	- Farm establishment or expansion (A) - Modernisation of farms, up to EUR 0.52 mill. per farm, up to 80% of investment value (B)	- Subsidisation of interest rate A: 22.5 M. EUR B: 17.0 M. EUR **Total budgetary outlay: 39.5**	Submission of business plan approved by the Extension Centre
Czech Republic 2001	Any agricultural investment	- Subsidisation of interest rate - New credits: 39 M. EUR **Total budgetary outlay: 78.0**	Bank has to approve the business/investment plan

Country / year	Type of investment	Kind of measure/ budgetary outlay in 2002, Million EUR	Eligibility conditions for aid
Slovakia 2002	- New farm technique and technology for plant production including construction and assembly works - New technologies for animal production including assembly works connected with installation of this technology - Construction investments connected with rehabilitation of animal and plant facilities. - Support of investments leading to supplementary activities and increase in employment	- Investments are supported by grants for 40% of the value of farm investments - Investments are supported by subsidised credits - Support of accessibility to an operational capital, - Partial interest refund on stocks, short-term credits, medium-term and long-term credits on investments **Total budgetary outlay: 27.8**	Applicant has to pay off min. 2% of interest during the year, interest rate subsidy can reach max. 9% of interest
Hungary 2003	- For purchasing or leasing new machines - For installations as well as constructions	- Subsidisation of interest rate (up to 50% and 40% of interest) **Total budgetary outlay: 223.5 + SAPARD Proposals for 22.4**	Application
Slovenia 2000	Restructuring in agriculture	- Investment support **Total budgetary outlay: 9.28**	Application
Romania 2003	- Agricultural machineries: EUR 18.9 mill. - Irrigation plants (installations): EUR 42.0 mill. - Breeding animal and livestock-farming installations: EUR 42.6 mill. - Vouchers for gas oil (0.11 EUR /l in 2003): EUR 45 mill. - Seeds: EUR 75.0 mill. - Free chemical fertiliser for private farmers with less than 2.5 ha arable land: EUR 82.1 mill.	Co-financing of measures by the national budget	- All agricultural producers (physical persons and legal persons), support for gas oil according to technological plan - Beneficiaries must own big agricultural holdings, to assure a proper technology - Subsidies are only granted for marketing production
Bulgaria	Investment enhancing productivity and quality	Subsidisation of interest rate	- To be registered as agricultural producers - All previous loans to be re-paid - Not to have any obligations to tax authority and Social security system - Business plan - Other administrative documents

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Despite the fact that governments in all new Member States subsidise investments in agriculture, the question remains whether such investments are justified from an economic point of view.

A crucial issue with respect to investments is obtaining information about the benefits and risks associated with an investment. The costs of searching for such information by the lender, the assumed risk of the investment and the available collateral to reduce the risk of default for the bank are reflected in the effective interest rate the borrower has to pay. Given the relatively high costs of obtaining information, the high risk associated with agricultural production and the lack of collateral, especially in the first decade of the transition process, loans

have not been granted at all or effective interest rates have been very high – often prohibitively high – for the borrowers.

Thus, governmental support is often regarded as essential for mobilising investment resources for the agricultural sector, thereby supporting the farm modernisation and restructuring process and improving farm structure. Several country experts (Lithuania, Poland, Czech Republic, Hungary, Bulgaria) point to these benefits, especially in the framework of lacking collateral and shortage of own finances.

However, credit subsidies are a questionable means of promoting investments, for several reasons. First, while the total amount of the costs of obtaining information about the benefits and the risks associated with a subsidised investment does not change, only a part of these costs is borne by the individual farmers. The rest is covered by the society. Second, governmental intervention might induce carelessness and misbehaviour, and banks might pay less attention to selecting borrowers if repayment of the loan is partly or fully guaranteed by the state. Moreover, borrowers might feel fewer obligations to pay back the loan. This happened e.g., in the Czech Republic, as the government initially provided a 100% guarantee for the loans. Third, demand for subsidised credits is often much larger than their availability. Because of lower information costs for banks to lend to larger than to smaller farms, smaller farms are not the major beneficiaries of these schemes. Finally, the effectiveness of these programmes is often not evaluated. These shortcomings are also reflected by some country experts. As a consequence, agricultural credit programmes should be carefully designed and constantly evaluated to guarantee a net benefit to the society.

Furthermore, there is evidence that public concern for the institutional environment of agriculture could provide a remedy for some of the financing problems of agriculture in CEE. Poland is an exemplary case. An evaluation of the governmental credit policy there has shown that, despite the subsidy programme, almost 40% of farm borrowers are not able to obtain as much working capital as desired and must therefore be regarded as being tightly credit rationed. In addition, the marginal return on working capital was found to be quite high on these farms, demonstrating a clear failure of banks to allocate credit efficiently (see PETRICK 2002 for details). Whereas the overall transition of the Polish banking industry has been widely successful, there is evidence that the unfinished restructuring and reconsolidation process of the rural banking sector might be partly responsible for still inefficient banking practices. In Poland, the government plays a crucial role in restructuring the banking sector, since it has direct control over wide parts of it, notably the state-owned Bank for Food Economy (BGŻ). Political considerations have thus far hampered its privatisation. Improving the institutional environment of the farming sector is suggested. This can be done by injecting human capital or technological innovations into the rural banking industry, and perhaps by putting more effort into privatisation.

On the other hand, institutional restructuring has been happening as a result of the liberalisation of trade and international finance in the process of European integration. DRIES and SWINNEN (2003) show that foreign investment in the Polish dairy sector has led to improved access to financial markets for dairy farmers as a result of assistance programmes initiated by the processing companies. Governments would therefore be well-advised to fully exploit these opportunities of the integration process and not sacrifice them for short-term political considerations.

In addition, other measures might be preferred for improving the situation of farm businesses and indeed in many of the new Member States a large range of policies to support farmers are applied. One of these is support for agricultural management services/agricultural advisory services. All CEECs except for the Czech Republic have implemented such services, mostly co-financed by the state and linked to research institutes. An overview with respect to the

main focus of these services, their financing and the budgetary outlay is provided in Table 8.3.

Table 8.3: Agricultural Management Services

Country	Institutional body / financed by	Main focus / budgetary outlay in 2002, mill. EUR
Estonia	n.a.	- Animal production - Plant production - Economics **Total budgetary outlay: 0.22**
Latvia	The Latvian Agricultural Advisory and Training Centre (LAAC): - Institution for training of and consultation with farmers and rural entrepreneurs - Non-profit organisation which is 99% state owned (the Latvian Farmers Federation holds 1%). - Farmers and entrepreneurs have to partly pay for the use of the advisory service - Educational services are accessible to all those involved in rural business activities	- Agricultural and economic consultations for farmers - Consultations and training in rural economy and business administration - A wider range and availability of training programmes - Design of the necessary application forms for SAPARD resources adoption - Diversification of the rural economy, and consulting in non-agricultural business activities
Lithuania	- Agricultural advisory service is partly government financed (covers basic services) - Research is completely government financed through contracted research schemes - In general, business planning and feasibility studies are financed through private sources - Business plans and feasibility studies approved for SAPARD assistance forsee cost coverage for up to 12% of eligible expenditure	- Farm economics - New technologies - Safety and quality issues - Plant production and protection - Animal production - Farm development - Farm accounting **Total budgetary outlay: 3.76**
Poland	- Net of Agricultural Extension Centres - Predominantly government financed	- Functioning of farms - Sectoral policy - Business planning - Preparing applications for pre-accession funds - Marketing **Total budgetary outlay: 47.0**
Czech Rep.	Does not exist	- Organisation of training seminars - Accompanying measure for SAPARD – subsidy for advisory (up to 60% of the costs)
Slovakia	- Management of the extension service in agricultural sector falls under responsibility of the Ministry of Agriculture - Extension service benefits greatly from its supervision by Agroinstitut Nitra and the Slovak Chamber of Agriculture - Advisory services are only partly financed by the government (up to 30% of advisory costs can be recovered)	- Livestock - Crop Production - Farm and Business Management
Hungary	Predominantly government financed	- Fruits and vegetables marketing organisations - Producer groups **Total budgetary outlay: 16.9**
Slovenia	- Organised by the Chamber of Agriculture - Partly financed from the budget of the Ministry of Agriculture, partly financed from the tax on agricultural and forest land as direct income of the Chamber of Agriculture	- Agricultural techniques (plant and animal production) - Economics - Food safety and food quality **Total budgetary outlay: 7.23**

Country	Institutional body / financed by	Main focus / budgetary outlay in 2002, mill. EUR
Romania	National Agency for Agricultural Consultancy: - Established in 1998 - Public institution - Completely public financed - Assures agricultural extension services in rural areas	- Agricultural techniques (plant and animal production, food industry) **Total budgetary outlay: 0.7 (2003)**
Bulgaria	Completely government financed	- Economics - Technique - Safety and quality issues - Plant production - Animal production

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Almost all country experts regard the advisory services as successful in that they improve farm efficiency, product quality and competitiveness. Especially in countries dominated by small farms, the advisory services are highly valued, since here the managerial skills of the farmers are at present still relatively poor (see section 4.3 for the low average educational level of farmers). Nevertheless, the experts also point to some shortcomings. In several countries, the level of usage of these services is still very low, although as in the case of Slovakia expanding rather rapidly. Some experts also criticise that at present the advisory services are too focused towards technical issues and are less oriented towards economic and policy advice. Finally, existing extension services do not yet provide the expected quality of advice, with insufficient capabilities and capacities for providing market-oriented business advice being observable.

To support young people in the commencement and development of commercial agricultural activity, aids for young farmers are granted in all CEECs except for Estonia, Latvia and Slovenia, where such schemes are envisaged to be introduced after EU accession (see Table 8.4). Such measures are aimed at stimulating, even speeding up, generational change in the countryside and improving access to credit resources for farm establishment, extension and modernisation. In some countries such as Poland, these measures are evaluated to have been extremely successful; experts from other countries criticise, however, that the financial means devoted to these measures have by far been too small to have any fundamental effect.

Table 8.4: Aid to young farmers

Country	Kind of aid	Conditions for receiving aid
Estonia	Not yet applied	n.a.
Latvia	Planned for 2004 to 2006: - Single payment of up to EUR 25,000 or/and refund of interest on loans taken in order to establish agricultural holdings, but not exceeding the aforementioned amount - Granting of a single support payment (allocation) for the initial setting up of agricultural holdings	- Legal persons - Age below 40 years as of the date of application - Economic viable projects
Lithuania	There is no separate programme, however, young farmers enjoy a higher support rate under general support programmes	- Same conditions as for other farming groups - Age below 40 - Registered farm - Farm accounting
Poland	Interest rate subsidies to credits used for creation of new farms by young farmers. Funds can be used for purchasing land and other assets	- Age below 40 years - Farm book-keeping - Approval of business plan by Extension Centre - Farm size above regional average - Farming should become major income source
Czech Republic	Support to buy and to improve assets (land, machinery, instalments, animal breed)	Age below 40 years as of the date of application
Slovakia	- Up to EUR 24,061 - Up to 100% of total expenditures - Possibility of loan interest pay back of 3% annually and loan with 5 years return period	- New businessmen – agricultural high school and university graduates up to 35 years in all forms of enterprising and for stated purposes - Business plan
Hungary	- Support to buy and to improve assets (land machinery, instalments, animal breed) - Support to employ young agricultural experts	- Age below 40 years - Proposal
Slovenia	Planned: Investment aid	- Age - Minimum level of education (e.g., in SAPARD programme)
Romania	- Free assignment of out of use animal shelters - Rehabilitation programme and/or building of greenhouses for fruits and vegetables - Rehabilitation programme of abandoned fruit-growing and vineyards plantation - Training activities of young farmers abroad	- Age below 40 years - Are or become residents in rural areas
Bulgaria	Low interest rate credits	As for general investment credits

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Early retirement schemes also aim at supporting structural change in the agricultural sector by ensuring income for those elderly farmers who cease agricultural activities and hand over their farms to their successors or sell it to other persons. So far, such measures have only been implemented in Poland at the beginning of 2002. According to the country experts, it is regarded as one of the most promising instruments of future structural change. The scheme was designed based on the rules of similar measures in the EU. Most of the other new Member States plan to implement such schemes in the coming years, although such measures are of less relevance in countries such as the Czech Republic and Slovakia (see section 4.2 for the age structure of those employed in agriculture).

Other policies aimed at sustainable improvement of the economic situation in the farm sector cover e.g., land improvement and land consolidation measures (see Table 8.5 and Table 8.6). All countries except for Bulgaria have implemented land improvement measures. In Bulgaria, such policies are planned. In general, support in the framework of these policies is provided

for the maintenance of sustainable productivity of agricultural land (arrangement of melioration system, liming of acid soils) thus reducing production costs and improving the production environment and product quality. Further, land consolidation exists in most new Member States. Especially in countries such as Slovenia where very small parcels of agricultural land dominate, such measures are of great relevance. The highly-fragmented land structure is a considerable obstacle for a more efficient use of mechanisation.

Table 8.5: Land improvement and land consolidation measures

Country	Land improvement measures	Land consolidation measures
Estonia	Liming support	Not applied
Latvia	- Construction, renovation, reconstruction of drainage systems - Renovation, reconstruction of polder area pumping stations and levees - Liming of acid soils - Scope of Support: - Support shall be granted as a public co-financing – up to 50% of the amount of the project implementation costs eligible for compensation	Not applied
Lithuania	- Land reclamation system is financed by the national budget to maintain drainage installations which are still state-owned - The draft of Law on Land Reclamation forsees transfer of part of drainage system to land owners	The Law on Government support for the acquisition of farmland stipulates priority to consolidation of farmland Measures cover government guarantees, subsidisation of loan interest rates, etc.
Poland	Subsidy to lime fertilisers	Not applied
Czech Rep.	Subsidy to calcium application	Land consolidation agency
Slovakia	- Soil improvement - Renewal of permanent grasslands - Investments in ecological structures - Non-food production - Transfer of arable land and permanent plants into grassland	Yes
Hungary	- Irrigation - Water supply	Yes
Slovenia	- Support of agricultural land improvements - Agro-melioration, irrigation, meadows improvements	Yes
Romania	- Soil erosion - Irrigation system	Soil studies
Bulgaria	No	At planning stage

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Table 8.6: Other measures aimed at improving farm business

Country	Measures
Poland	- Product specific interest subsidies (dairy, potato, fisheries), support for joint use of machines - Support to establish farms on former state-owned land
Slovakia	Direct payments on crop and livestock
Hungary	Financial support to implement the *acquis*
Slovenia	Financial support to reconstruct food processing and agricultural service co-operatives
Romania	20% subsidy on crop and animal insurance premium

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

8.3 Policies aimed at supporting forestry

Estonia, Latvia, Poland, the Czech Republic, Slovakia, Hungary and Slovenia have already enforced programmes supporting afforestation and renewal of forests and forest infrastructure.

An overview with respect to the policies implemented is provided in Table 8.7. While these measures are considered to be successful, some of the country experts regard them as not sufficient to secure a renewal of forests. Due to the high costs of afforestation and the long term of such investments, private owners have little interest in these measures. This holds especially given the lack of own financial means and the relative high effective interest rates for such activities.

Table 8.7: Policies aimed at supporting forestry

Instrument	Countries	Details
Supporting investments in farm businesses to support forestry	All except for Estonia, Lithuania	- Subsidies to afforestation and renewal of forests, roads - Credit subsidies - Since 2002 support in Poland has been provided for afforestation of marginal farm land. This scheme is very popular due to the high rates of support. If farmers give up farming and the farm land will be used for afforestation, the rate of support is increased by 50%
Supporting investments for marketing and processing forestry products	Hungary Romania	- Support for construction of buildings for processing self produced agricultural and forestry products - Support for harvesting, processing and marketing of forest fruits, mushrooms, etc.
Other measures in place to support forestry	Estonia Latvia (planned) Lithuania Hungary Slovenia Romania	- Support to afforestation - Support to afforestation - Bilateral foreign assistance and SAPARD support afforestation of low productivity farm land - Support to afforestation and structural improvements - Support to public forestry services - Support to ecology reconstruction, preserving forestry biodiversity, and modernization of forestry roads, administration of protected areas, supporting the forestry retrocession

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

8.4 Policies aimed at supporting investments in food processing and marketing

Compared to the budgetary support to farm businesses the total outlay for supporting investments in food processing and marketing is rather small. While all countries already introduced programmes to improve the processing and marketing of agricultural products, most of the reconstruction of CEECs´ food industries is financed by foreign direct investments. Details of the manifold programmes implanted in the new Member States are presented in Table 8.8 to Table 8.11. Policies supporting investments in food processing are especially widespread in the new Member States. Table 8.8 shows that investment support is mostly directed towards enhancing quality and adapting to higher (EU) standards. Several country experts value these measures as very successful. Most of the agricultural processing enterprises are using outdated equipment and technology, with the result that the quality of processed produce only partly meets the requirements of the EU and those of the world markets, thereby considerably impeding the competitiveness of the products. Thus, support under these programmes is important. However, in some countries such as Latvia, primarily larger enterprises benefit from these measures, although especially the small- and medium-size enterprises with little or no own financial resources and with hardly a chance to benefit from foreign capital are in need of this financial support. In addition, the limited funding of these programs reduces the impact of such measures. Finally, it should be mentioned that the problems with investment support as discussed in section 8.2 also hold for such policies in the food sector.

Table 8.8: Supporting investments to promote processing and marketing of agricultural and food products

Country	Kind of investment	Scope and conditions for receiving support
Estonia	SAPARD measures with government co-financing are targeted to the food processing industry.	n.a.
Latvia	- Equipping, purchasing and modernising immovable property of agricultural holdings - Acquisition of new means of production, incl. IT technology and software, for agricultural production - Overall expenditure of agricultural holdings: architecture, engineering services, consulting fees, obtaining patents and licences - Performance of marketing activities by agricultural holdings	Support shall be granted as public co-financing – up to 50% of the amount of the project implementation costs are eligible for compensation
Lithuania	- Investments enhancing quality and adopting EU standards through SAPARD and national budget (Rural Support Program) - Subsidised interest rate on short and medium-term loans to purchase agricultural produce - Loan guarantees - Market information system - Export promotion - Support to co-operative processing and marketing entities (interest rate, investment grants) - Sectors primarily receiving this support: dairy, grain, meat, vegetables	Conditions for receiving support: - Specific to individual programmes - For investment under SAPARD, business plans have to be approved
Poland	Interest rate subsidies on investment credits. The following credit lines are implemented: - "Basic" investment credits covering investments aimed at modernisation and restructuring - Branch-specific credit line focusing on modernisation of dairy, meat, fishery, starch potato processing Objectives: - Assistance to enterprises in the processes of adapting to EU standards and market requirements. - In processing sector, the preferential credit is limited up to EUR 0.52 mill. per enterprise and up to 70% of total investment value	Business-plans need to be approved by extension centres
Czech Republic	- Support to SME Czech-Moravian Support and Development Bank all sectors - The Hygienic programme of Support and Guarantee Fund for Agriculture and Forestry - For meat and milk processors	n.a.
Slovakia	- Subsidies for capital expenditures (purchase of fixed assets) aimed at enhancing quality and adapting to EU standards - Reduce interest rates on loans taken to finance warehouse receipts for the storage of food products - Support for the production and sale of milk powder - Support presentation of products/services at domestic and international exhibitions and fairs	n.a.
Hungary	- Improve technology - Product quality - Cease pollution, energy use - Sectors primarily receiving this support: - Processing of potatoes, food maize, eggs, honey and medicinal plants, bakeries, pasta	- Small- and medium-sized companies - Must be secured that no excess capacity is created - Proposal
Slovenia	Support for input costs	n.a.

Country	Kind of investment	Scope and conditions for receiving support
Romania	- SAPARD Programme supports the processing and marketing of agricultural and fishery products - Launched in August 2002 - Sectors primarily receiving this support: processing of milk, meat, fruit and vegetables, potatoes, wine, fisheries products, cereals, oil-seeds and sugar	- Economic and financial viability of the project, (business plan required for project values EUR >50,000) - Skills in field of activity - No unpaid taxes - 50% co-finance (70% for sugar, oleaginous and cereals) in 2003
Bulgaria	Investments enhancing quality and adaptation to higher (EU) standards under SAPARD	More than 15 required documents

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Support of investments in marketing is of much less relevance in the new Member States (see Table 8.9). Table 8.10 provides an overview on special support for food processing and marketing enterprises in rural areas which are in place in several new Member States, partly in the framework of the SAPARD programme.

Table 8.9: Support of investments in marketing (including subsidies on interest rates)

Country	Description
Estonia	No
Latvia	Yes, but not specified by the country experts
Lithuania	- Under EU SAPARD programme - Export promotion measures - Under RSP support to cooperative processing and marketing - Market information system
Poland	Yes, but not specified by the country experts
Czech Republic	Creating marketing co-operatives
Slovakia	Not specified
Hungary	Marketing programs
Slovenia	- Support for providing incentives for marketing and consumption - Support primarily focused on dairy and meat products
Romania	Yes, but not specified by the country experts
Bulgaria	No

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Table 8.10: Specific support for food processing and marketing enterprises located in rural areas

Country	Description	Conditions / scope of support
Estonia	For improvement of buildings and equipment to reach the hygienic condition	- Application - Business plan
Latvia	Improving processing and Marketing of agricultural Products	Public co-financing – up to 50%
Lithuania	Priority under SAPARD programme in selection of projects	n.a.
Poland	No	
Czech Rep.	No	
Slovakia	Not specified by the country experts	
Hungary	Support local quality products	- Registered (or on the process of registering) - Proposal
Slovenia	Minimal support was devoted to special policies for enterprises located in rural areas	n.a.
Romania	SAPARD programme: processing and marketing of agricultural and fishery products	- Proposal - Improvement of the quality of products by establishing own control laboratories in the specific area - Promotion of traditional products
Bulgaria	No	

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

So far, none of the new Member States has provided support for quality labelling[12] and/or the protection and certification of origin labelling with respect to agricultural and food products. Moreover, policies to promote institution building in rural areas beyond those mentioned above, e.g., advisory services, are so far of minor relevance. Most of the country experts state that such measures do not exist (Estonia, the Czech Republic, Hungary, Romania, Bulgaria) or they do not further specify in which form such policies have been implemented (Latvia, Slovakia, Slovenia). In Lithuania, institution building in rural areas is supported under the national co-operative development programme. This programme is aimed at creating additional outlets for farm produce and ensuring product quality and safety control. In Poland, policies which support institution-building exist as well. They aim at supporting the market infrastructure by providing credits for investments or by helping to overcome financial problems of selected wholesale markets. The measures are aimed at improvement in the distribution chain. Their cost effectiveness, however, seems to be questionable, since in the long run, many of the supported wholesale markets do not seem to be viable.

Other measures to support the processing and marketing of agricultural and food products in the new Member States are summarised in Table 8.11.

[12] However, since 2000, under the auspices of the Ministry of Agriculture, the symbol "Good Polish Food" has been awarded to producers of food of distinguished quality in Poland. At present, there are 400 products awarded with this symbol.

Table 8.11: Other measures in place that are aimed at supporting the processing and marketing of agricultural products

Country	Description
Estonia	No
Latvia	Plan 2004-2006: - Support to recognised producer groups (ensuring and managing their operations) - Support shall be determined at a flat-rate depending upon the value of the produce and services annually sold by the group of producers
Lithuania	- Under structural funds, same measures as Latvia - Support for private grain storage - Preferential credits for purchase of agricultural products
Poland	Preferential credits for the purchase and storage of agriculture (and fishery) products
Czech Rep.	No
Slovakia	- Promoting consumption of dairy products at schools through subsidies - Subsidies are paid to those dairies that supply milk and dairy products to schools at reduced prices
Hungary	No
Slovenia	Market intervention
Romania	- Direct subvention for several crop and animal products - Exemption from paying income taxes for income from sale of agricultural products
Bulgaria	No

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

8.5 Policies aimed at improvement of rural areas

All new Member States have received clearance for the disbursement of funds from SAPARD, which provides EUR 520 mill. annually for agriculture, rural development and assistance in implementing the *acquis communautaire*. In terms of allocation among the new Member States, Poland is eligible for 32% of the total SAPARD budget, and Romania for 29%. While a major part of the available budget will be channelled into agricultural and agri-food processing, some funds will be used for the improvement of infrastructure in rural areas.

While many new Member States already introduced Common Market Organisations and other CAP-like instruments, there are only a few programmes planned or enforced that aim at supporting sustainable rural development. Most of these programmes support rural tourism on farms or direct processing of agricultural commodities. Most of the programmes supporting the renovation of rural infrastructure will be part of the Structural Funds for Objective 1 regions.

Table 8.12: Support of basic services in rural areas

Country	Description
Estonia	No
Latvia	No
Lithuania	- Support to improve rural infrastructure under national and SAPARD programmes - Health care and child care, as well as education, is fully or partially government financed - School-bus programme
Poland	No "special" arrangements towards rural areas
Czech Rep.	No. However, schools and health service are publicly financed – additional regional support depends on priorities of regional, local governments
Slovakia	The responsibility for provision of basic services was transferred from national level to the regional or local self-governments with very limited budgets allowing only to maintain the health and school facilities in operation. No national policy to support and develop basic services existed in 2002. In the near future the Sector Operational Programme can be helpful, it includes a measure specifically focused on the support of local infrastructure development in rural communities with the budget of ca. EUR 36 mill. of public expenditures
Hungary	Employment of sub-regional managers, to finance elaboration of development projects
Slovenia	- Support to schools - Support to areas with low population density and/or declining population/multi-ethnicity (e.g., Hungarian and Italian minorities, Gypsy communities)
Romania	- Support to microbuses for transport of pupils from remote villages to the community school - Support to health care centres (problem low funding), family doctor system
Bulgaria	No

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Most measures for the improvement of physical infrastructure in rural areas (see chapter 5) in the CEECs are financed through SAPARD programmes (see Table 8.13). Some of the country experts point out that the application for and the implementation of such programmes implied substantial efforts in terms of institution building in the respective countries. Such efforts, however, are regarded as essential for those nations to prepare administrating structural funds after accession to the EU. In most countries, measures for the improvement of the physical infrastructure in rural areas have only recently been implemented, thus, so far an evaluation of these policies is hardly possible. Some of the country experts regard these measures as being quite successful in contributing to the physical capital in rural areas and in mitigating the problems of rural areas.

Table 8.13: Measures for the improvement of physical infrastructure in rural areas

Country	Description
Estonia	No
Latvia	- Improvement of basic rural infrastructure - Improvement of rural municipal, household and enterprise (company) motor roads and streets - Installation and improvement of water-mains and sewage systems - Establishment and development of rural communication centres - Modernisation and reconstruction of hydro-technical equipment in polders - Electrification of rural households
Lithuania	Installation and improvement of water supply, sewage and waste water treatment, roads, land reclamation, electricity, etc., under national and SAPARD programmes
Poland	- Subsidies to infrastructure investments (water supply, sewage system, roads) financed from the funds reserved for SAPARD (ARMA). Funds were allocated among regions based on objective criteria. Subsidies were limited to 50% of total investment value - Component C of the Rural Development Programme (PAOW) – Rural Infrastructure. Funds from the World Bank loan were allocated among regions (*voivodships*) based on objective criteria. Applications could be submitted by rural and urban-rural communes, as well as cities below 15,000 inhabitants and associations of communes
Czech Rep.	Village renewal programme: infrastructure (roads, water supply, sewage systems, gas supply)
Slovakia	Programmes covering the whole country (not specifically focused on rural areas) with very limited budget not meeting the actual demand for technical infrastructure and environmental facilities (total capital expenditures EUR 24.5 mill.): - Air and ozone protection (mainly gas pipes reconstructions and constructions) - Protection and rationalisation of water utilisation (mainly water cleaning facilities/sewage pipes) - Waste management (mainly waste separation, dangerous waste places, waste incineration plants) - Protection of the sustainable biodiversity (mainly ecological networks and nature protected areas) - Spatial Planning and revitalisation of countryside - Environmental information and monitoring Programme is quite successful, but there is a need to expand the budget since especially rural areas are still not sufficiently equipped with water-pipes and sewage facilities (the situation is especially bad regarding water cleaning facilities). Sector Operational Programme with measures for rural areas in the near future (see Table 8.12)
Hungary	Improvement of rural infrastructure
Slovenia	- Partly support roads, water supply, sewage systems, water management for agriculture - Low population density and/or declining population/multi-ethnicity (e.g., Hungarian and Italian minorities, Gypsy communities)
Romania	- Since May 2002 SAPARD measures: Development and improvement of rural infrastructure (building and modernising of local roads of public interest or for tourism, assuring potable water to the rural localities, sewage systems) - PHARE 2000 funds: development of regional and local infrastructure
Bulgaria	No

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Policies to promote diversification in rural areas are supported in most new Member States through SAPARD programmes. Table 8.14 summarises the different measures implemented in the various countries. Such policies are important for the creation of new job opportunities in rural areas, thereby fostering structural change in agriculture and reducing rural-urban migration. In addition, measures promoting investments for the creation of jobs in rural areas serve that aim (see Table 8.15). Table 8.16 shows that in six CEECs there are programmes in place meant to support the renovation and development of villages.

Table 8.14: Promotion of diversification of agricultural activities and connected activities

Country	Description
Estonia	No
Latvia	- Promotion of technical services - Promotion of production of alternative heating material - Promotion of rural tourism - Promotion of non-traditional agriculture - Promotion of crafts
Lithuania	SAPARD and national support programmes for non-traditional agriculture and alternative employment in rural areas (crafts, rural tourism, processing, etc.)
Poland	No
Czech Rep.	SAPARD programme
Slovakia	- State subsidies of the Ministry of Agriculture: limited budget, for satisfying demand, relatively weak eligibility criteria; no standardisation system is in place; lack of training obligations for granted service-providers influences negatively the quality of service offered; EUR 983,300 - SAPARD Programme: unspent financial allocation due to, e.g. complicated application procedures, higher level of required co-financing compared with state subsidy programmes; high absorption by regions exhibiting relatively limited competitive advantage for tourism (due to a better co-financing abilities of applicants in those regions); EUR 3,2 mill. (years 2000 and 2001) Eligible activities mainly: - (Re)construction and modernisation of recreation, accommodation and agri-tourism facilities - Reconstruction / modernisation of existing farm / forestry facilities which lost their original use - Development of relaxation and recreation facilities
Hungary	No
Slovenia	Support for rural development (tourism on farm, crafts, processing on farm)
Romania	Rural tourism
Bulgaria	Rural tourism, herbs collecting and producing

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Table 8.15: Promotion of investments to create jobs in rural areas

Country	Description
Estonia	Support to tourism, handicraft, rural services, fishery and other activities in rural areas
Latvia	No specific measures
Lithuania	Under general support to reduce unemployment, development of SME under SAPARD to generate alternative employment and diversify economic activities in rural areas, development of rural tourism and other business under EU PHARE, ntional funding
Poland	- Loans with subsidised interest rates for small-scale entrepreneurship in rural areas administered by ARMA - Loans granted to enterprises in rural areas for creation of sustainable jobs in non-farm activities
Czech Rep.	General
Slovakia	Measures within the Active Labour Policy, generally applied in the whole country, not specifically targeted towards rural areas; EUR 93 mill. (2002): - Self-employment workplaces (for purchase of real estate and equipment, salaries, rent and other costs connected with the small business establishment) - Workplaces for new employees, for graduates and young people (salaries and other fees connected with salaries) - Public works and employees (salaries and other fees connected with salaries) - Programme for SME to support employment (subsidies on interest rate for credits) Quite successful, but dependent on the financial situation within the National Labour Office
Hungary	No
Slovenia	Small and medium enterprises
Romania	SAPARD programme
Bulgaria	No

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Table 8.16: Renovation and development of villages and other policies aimed at a the general improvement of rural areas

Instrument	Countries	Details
Renovation and development of villages	Estonia, Czech Republic, Slovakia, Hungary, Slovenia, Romania	Estonia: Programmes for village culture development Czech Republic: Village renewal programmes (improving public areas and buildings, maintaining traditions and rural heritage, maintenance and development of recreational functions) Slovakia: Programme of Village Renewal for rural communities and micro-regions; only small projects supported; Ministry of Agriculture is not cooperating with the funding Ministry of Environment: Great interest, but very little impact. Evaluated by programme beneficiaries as a not very successful one. Very small budget (EUR 476,190), not sufficient to cover real need, e.g. in the field of spatial planning, in which the legal obligation exists, but communities themselves have no means to pay expensive plans and the programme can cover only 25% of costs incurred. Almost no means for investments - e.g. reconstructions of abandoned or damaged buildings and public places Slovenia: Promotion of wine roads Romania: some local programmes on the basis of NGO's activities
Other measures aimed at improving the living conditions in rural areas	Latvia, Romania	Latvia: Programmes to preserve the rural landscape Romania: Programmes to improve the development of rural infrastructure

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

8.6 Policies aimed at supporting environmentally-friendly farming and less favoured areas

In line with the introduction of direct payments, most of the CEECs have introduced special programmes to support environmentally-friendly farming or farming in less favoured areas (LFA). As detailed in section 7.7 all new Member States except for Slovenia included an agri-environmental component in their SAPARD programmes. Slovenia supports agri-environmental measures not under SAPARD but nationally financed.

In some of the new Member States, LFA amount to a significant share of total agricultural area (see Table 8.17). For example, in Slovakia this share is 70%, whereas in Romania it is only 11%. Nevertheless, support for such areas is still of relatively little relevance. In the three Baltic countries and Hungary, there are no mountainous areas to support and therefore no programs. In the other countries, support is provided partly on a per hectare or per animal basis or by granting farmers investment support (Table 8.18). Further, support for other LFA is not very widespread in the new Member States (see Table 8.19).

Table 8.17: Less-favoured areas in the new Member States

Country	EST	LV	LT	PL	CZ	SK	HU	SLO	RO	BG
Year	n.a.	n.a.	2001	2003	2003	2002	n.a.	2000	2000	2000
% of total area	n.a.	n.a.	25	32	55	35	n.a.	70	7	24
% of total agricultural area	n.a.	n.a.	48	56	56	70	n.a.	55	11	n.a.

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Table 8.18: Support for mountainous areas

Country	Description
Estonia	No
Latvia	No
Lithuania	No
Poland	Communes or single farmers from mountainous areas may apply for a reduced land tax and preferential loans at rates below the standard level
Czech Rep.	- LFA compensations (e.g., compensatory allowances per ha or per animal; special investment aids) - Only grasslands receive the support - Will be modified when adopting HRDP
Slovakia	Subsidies provided depend on the price of the land, thus, in mountainous areas with lower land values, higher subsidies are paid
Hungary	No
Slovenia	- Compensatory allowances per ha or per animal - Special investment aids - Conditions for receiving support: altitude of the land, slope of the terrain, karst terrain/agricultural land with poor soil
Romania	National Agency for Mountain Area
Bulgaria	Low interest rate investment credits

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Table 8.19: Policies supporting other LFAs or areas affected by specific handicaps

Instrument	Countries	Details
Support for other LFAs	All, except for Poland, Bulgaria, Estonia (planned)	In most countries, support for mountainous areas are also valid for other LFA
Support for areas affected by specific handicaps; e.g., melioration	Lithuania, Poland, Slovakia, Romania	Lithuania: Drainage facilities are state-owned and maintenance is paid by the state budget Poland: Support to renovate water protection dams Slovakia: Subsidy on disaster insurance (catastrophic damages, flood) Romania: Some aids in case of natural disaster
Other measures supporting LFAs	Hungary	Hungary: Direct aid in environmentally-sensitive areas

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

8.7 Fiscal policy measures with relevance for agriculture and rural areas

Fiscal policies are often of considerable relevance to agriculture and rural areas. As in most Member States of the current EU, five of the ten new Member States have also implemented a differentiated system of value added tax (VAT) rates, with reduced rates for agricultural and food products and/or for agricultural inputs. Table 8.20 provides an overview with respect to the different tax rates applied in the CEECs. It reveals that the general VAT rate ranges between 18% and 25%, and thus has a similar span as the VAT rates in the current EU States (range: 15% in Luxemburg to 25% in Denmark).

Table 8.20: Special VAT-rate for food

Country	Description
Estonia	General VAT rate – 18%; no special rate for food
Latvia	- General VAT rate – 18% - Lower rate for veterinary medicine – 9% - Subsistence farmers (less than 10% of output marketed) and very small farms (value of taxable supply less than EUR 50,061) do not have to register for VAT
Lithuania	- General VAT rate for food and non-food – 18%, - For organic products and for fresh and chilled meat – 5%
Poland	- General VAT rate – 22% - Lower rate for agriculture and semi-processed food products – 3% - No VAT for machinery and tractors (0%)
Czech Rep.	- General VAT rate – 22% - Lower rate for food and services – 5%
Slovakia	From 2003 unit VAT value – 20%
Hungary	- General VAT rate (coffee, tobacco and alcoholic drinks included) – 25 % - Lower rate for food, books, public transport – 12 %
Slovenia	- General VAT rate – 20% - Lower rate for food, books, water, medical equipment, public transport – 8.5%
Romania	- General VAT rate for all products – 19%; no special rate for food - Exemption from the paying of VAT for small businesses up to 1.5 billion lei (EUR 46,486) income/year (in 2002)
Bulgaria	No special rate for food

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Several new Member States request lower income taxes from their agricultural producers, or even exempt them from paying income taxes, as is in principle the case in Lithuania (Table 8.21). In Poland, farmers only have to pay a land tax instead of the "standard" personal income tax. Taxes on land are enforced in most countries (see Table 8.22).

Table 8.21: Special income tax for agricultural activities

Country	Description
Estonia	No
Latvia	- Personal income tax must be paid from profits from agricultural activities exceeding EUR 5,017 and from all other profits - Private individual farmers, householders and private auxiliary farmers are liable for income tax at the standard rate of 25% if their annual income is less than EUR 75,092. Agricultural enterprises whose profits exceed that amount are subject to the much higher corporate tax
Lithuania	- Agricultural companies (engaged in raw material production) enjoy profit tax reductions from 15% to 10%, and if agricultural income exceeds 50% of total income, profit tax is waived - Individual farmers with agricultural income exceeding 50% of total income are exempt from personal income tax. Practically covers all individual farmers
Poland	- Farmers are exempt from “standard” personal income tax paying instead the “land tax” (see Table 8.22) - Some activities (e.g., greenhouses, fish ponds) are subject to special taxes paid as a flat rate defined by the law regulation or, if farmers choose, paid as income tax
Czech Rep.	No
Slovakia	In agriculture income, tax reduction from 30% to 15% if agricultural income exceeds 50% of total income
Hungary	- Company farms are taxed as any other company - Individual producers with semi-subsistence farms are exempt from personal income tax if revenue does not exceed EUR 1,000
Slovenia	No
Romania	Not specified
Bulgaria	No

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Table 8.22: Land tax

Country	Description
Estonia	No
Latvia	Since 2002 – 1% of the cadastral value of the immovable property
Lithuania	Yes, but exemption from tax for the initial three years after farm establishment. Later, municipal authorities may authorise a 50% reduction in land tax and land rent tax rate or even waive them on a case by case decision on an annual basis
Poland	- Calculated based on farm land area. The basic rate of farm tax is an equivalent to 0.25 t of rye per "standardised hectare". Standardised area differs from physical area, depending on the soil quality and location of farm (so called tax circles). Revenues from farm tax fill budgets of local communes. - At present, the government is considering farm tax reform. It is proposed that farmers can choose between flat rate system and income tax
Czech Rep.	0.5% of the administrative price
Slovakia	0.75% from the administrative land price of arable land and 0.25% from the administrative land price of PGL
Hungary	No
Slovenia	- Depending on the use (agriculture, forestry, others) and the quality of the land - The level of the land tax depends on cadastral income
Romania	- Planned for 2003 - Depending on the use and the quality of the land
Bulgaria	No

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

In general, the tax per hectare depends on the quality and the use (e.g., forestry, grassland, arable land) of the land. Latvia, Lithuania and the Czech Republic provide a rebate of excise taxes on diesel fuel to their farmers (see Table 8.23).

Table 8.23: Other measures with relevance to agriculture and rural areas

Country	Description
Estonia	No
Latvia	- Property tax is not levied on property used exclusively for agricultural operations (or intended to be so used) - Since 1995, some reimbursement of excise tax on diesel fuel used in agriculture has been granted for agricultural producers
Lithuania	Compensation of diesel fuel excise tax (for 120 litres of fuel per 1 ha of farmland). Eligibility: registered farms, declared crops. Beginning in 2004, a fuel tax exemption takes the place of the compensation
Poland	No
Czech Rep.	Compensation of fuel excise tax for agriculture (EUR 37.7 mill. in 2001)
Slovakia	No
Hungary	No
Slovenia	General expenditures in agriculture (in 2000): - Research: EUR 0.94 mill. - Education: EUR 0.90 mill. - Experts work: EUR 12.31 mill.
Romania	Compensation of fuel
Bulgaria	No

Source: Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

8.8 Concluding remarks

This chapter reveals that a general convergence of agricultural policy instruments in the CEECs towards those of the EU has taken place. This is shown in the overall level of support as measured by PSEs, and by the decline in the proportion of that support given through market price instruments. Most of the agricultural policy instruments applied in the EU have also been implemented in the new Member States. However, the adaptation of the policy instru-

ments towards CAP-like measures had taken on an ad hoc basis and had not been implemented systematically. Rapid changes in the use of policy instruments and the level of support for different commodities led to high policy and market risks for farmers. As a consequence, the increase in total level of support, and notably that of market price support, has not led to the expected increase of production in most of the new Member States. As outlined in section 8.2, apart from high policy and market risks, the lack of institutions in rural areas in the new Member States heavily contributed to the slow pace in agricultural recovery and the limited success of agricultural credit programmes.

However, besides the classical CAP-like policies, the new Member States apply a wide variety of additional measures to support their rural agricultural sectors and rural economies. Table A-8.1 provides an overview of the expenses devoted to the different measures discussed in this chapter. It becomes obvious that most funds are aimed at improving farm businesses. In particular, support for investments in farm businesses takes a lion share of total budgetary outlay in this area. Some of the policies summarised in Table A-8.1 are financed by the SAPARD funds and will help the new Member States to implement the regulations of the *acquis communautaire*.

In Table A-8.2, twenty-eight different measures to support agricultural and rural economies are assessed by the country experts with respect to their relevance in the CEECs. The answers of the different experts deviate to some extent, partly reflecting the different needs in the various new Member States. However, almost all experts regard the compliance with community standards as most relevant. Also, support for the marketing of quality agricultural products, for marketing and processing in general, for young farmers as well as for investments in agricultural holdings, are considered to be of very high importance in most countries. However, not in all cases is the relevance reflected in the financial means devoted to the respective area.

9 TYPOLOGY OF RURAL AREAS IN THE CENTRAL AND EASTERN EUROPEAN COUNTRIES

The preceding chapters addressed various aspects and problems of rural areas and the need for policy measures. In order to efficiently pursue the goal of reducing regional disparities and developing rural areas, specific knowledge on the peculiarities of the different regions to be developed is necessary. Although rural areas in CEE have some common features, several regions each have very particular characteristics and it is not appropriate to refer to them as *the* rural area (cf. chapter 2). Therefore, the aim of this chapter is to classify rural areas in the new Member States and thus to identify several regional types as a basis for elaborating guidelines for rural development measures. In the following, the data base used and the methodology applied are described. Then, the results of the cluster analyses are presented and discussed.

9.1 Data and methodology

The typologies of rural areas in the CEECs presented in this chapter are based on data provided by EUROSTAT's NewCronos Regio database. This database is organised according to NUTS (*Nomenclature des Unités Territoriales Statistiques*) – the statistical classification of the European Union, which has already been introduced in the CEECs. The classification ranges from NUTS 0, which corresponds to the respective whole country, via further and further disaggregated units to the NUTS-5 level of local municipalities or communes. In the new Member States, NUTS 1 is identical with the NUTS 0 level, whereas within the EU-15, it comprises 72 regions like the *"Länder"* in Germany. For the small new Member States, i.e., Estonia, Latvia, Lithuania and Slovenia, NUTS 2 also covers the whole country (see Table 9.1). In the other CEECs, the number of NUTS-2 regions per country ranges from 4 in Slovakia (*"Zoskupenia Krajov"*) to 16 in Poland (*"Wojewodztwa"*). NUTS 3 comprises 188 regions, from 5 per country (Estonia, Latvia) to 44 (Poland). The names of the NUTS-2 and NUTS-3 regions are listed in Table A-9.1 and Table A-9.2 in the annex, and their location is shown in Map A-9.1 and Map A-9.2 in the annex. At NUTS 4, there are 1,149 administrative units and at NUTS 5 a total of 21,656 local municipalities in all new Member States. In many countries the number of NUTS-5 municipalities was changed within the last years due to administrative reforms.

The use of EUROSTAT's NewCronos Regio database is connected with several restrictions in data availability regarding the classification of rural areas. Regional data is only available at NUTS-2 and NUTS-3 level, whereby on the former level more variables exist than on the latter (a range of available variables for the NUTS-2 regions are compiled in Table A-1.1 in the annex). A differentiation according to NUTS 4 or NUTS 5 would have been more appropriate for the analysis, because regions at NUTS-3 level are still quite heterogeneous. In addition, two general problems are incomplete tables and that the comparability of data is not always ensured. No distinctions exist between rural and non-rural regions in the database. Since the definition of rural areas is problematic and not available on NUTS-3 level, (cf. chapter 2) *all* regions have been included in the analysis. It can be expected that the cities will be separated in one single cluster.

Table 9.1: Administrative units and NUTS levels in the CEE new Member States

	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5
Estonia	Eesti	Eesti	groups of Maakond (5)	Maakond (15)	Vald + Alev + Linn (247)
Latvia	Latvija	Latvija	Regions (5)	Rajoni + Pilsetas (33)	Pagast + Pilsetas (547)
Lithuania	Lietuva	Lietuva	Apskritis (10)	Savivaldybes (60)	Seniunija (524)
Poland	Polska	Wojewodztwa (16)	Podregiony (44)	Powiaty (373)	Gminy + Miasta (2,486)
		Planning region (6)			
Czech Republic	Ceska Republika	Groups of kraje (8)	Kraje (14)	Okresy (77)	Obce (6,258)
Slovakia	Slovenska Republika	Zoskupenia krajov (4)	Kraje (8)	Okresy (79)	Obce a Mesta (2,878)
Hungary	Magyarorszag	Tervezesi – statisztikai regio (7)	Megyek + Budapest (20)	Statisztikai kisterseg (150)	Telepules (3,133)
Slovenia	Slovenija	Slovenija	Statisticne regije (12)	Upravne enote (local government units; 58)	Obcine (193)
Romania	Romania	Regions (8)	Judet + Bucuresti (42)	Officially not existing	Communes+ Municipiu +Orajse (2,951)
Bulgaria	Bulgaria	Rajon za planirane (6)	Oblasti (28)	Obshtini (262)	Naseleni mesta (2,439)
Total	**10**	**53**	**188**	**1,149**	**21,656**

Source: http://europa.eu.int/comm/eurostat/ramon/nuts/statistical_regions_t1_en.html. Updated by Country experts of the Network of Independent Agricultural Experts in the CEE Candidate Countries.

Two analyses including all ten new Member States were carried out: the first was on the NUTS-3 and the second on the NUTS-2 level. Slovenia could only be incorporated as a whole country (NUTS 0 = NUTS 2) without regional differentiation because of missing variables on the NUTS-3 level.

The advantage of the analysis of *NUTS-3* level is a more detailed regional disaggregation. Due to this fact, the main focus in describing the results will be on this analysis. Disadvantageous is the fact that at this level, data availability is more restricted and only seven variables could be included in the analysis (see Table 9.2).

Therefore, a second analysis of *NUTS-2* level was conducted with 13 variables (see Table 9.2). However, the Baltic states, which are not regionalised at all on the NUTS-2 level, are incorporated on the NUTS-3 level in order to create regionalisation. This did not cause data problems, because for these countries all of the relevant variables except two are also available on the NUTS-3 level. The two variables which therefore had to be excluded are the share of agricultural employment in total employment and the share of population with a low education level. However, a comparative cluster analysis demonstrated that the exclusion of these variables did not significantly change the classification result. In addition, a comparative cluster analysis including the regions of the European Union (without the UK because of missing values) was carried out (NUTS-2 analysis EU-24).

Table 9.2: Variables included in the cluster analyses

	NUTS-2 regions CEEC-10 + EU-24 (NUTS-3 in Estonia, Lithuania and Latvia in analysis with CEEC-10)	**NUTS-3 regions CEEC-10** (NUTS-0 in Slovenia)
Demographic data	Population density [inhabitants / km^2], 2000 (EU-24 analysis 1999) (see Map 2.1) Share of total population aged 60 and over [%], 2000 (EST 2001, LV 1999) Share of total population aged 0-19 [%], 2000 (EST 2001, LV 1999)	Population density [inhabitants / km^2], 2000 (see Map 2.1) Crude death rate [number of deaths per 1,000 population in a given year], 2000 Crude birth rate [number of births per 1,000 population in a given year], 2000
Macro-economic data	GDP per capita [Purchasing Power Parities], 2000 (see Map 4.1) Unemployment rate [% of unemployed in the labour force], 2001 (see Map 4.6) Share of value added of industry in total value added [%], 1999 (ROM 1997, EU-14 except PT and IE 2000) (see Map 4.7) Absolute change in percentage share of value added of industry [% points], between 1995 and 1999 (BG, EST, LT, LV 1996-99, ROM 1995-1997, EU-14 except PT and IE 1995-2000) Absolute change in percentage share of value added of services [% points], between 1995 and 1999 (BG, EST, LT, LV 1996-99, ROM 1995-1997, EU-14 except PT and IE 1995-2000)	GDP per capita [Purchasing Power Parities], 2000 (see Map 4.1) Unemployment rate [% of the unemployed in labour force], 2001 (see Map 4.6) Share of value added of industry in total value added [%], 1999 (ROM 1997) (see Map 4.7)
Agricultural data	Share of value added of agriculture in total value added [%], 1999 (ROM 1997, EU-14 except PT and IE 2000) (see Map 4.7) Absolute change in percentage share of value added of agriculture [% points], between 1995 and 1999 (BG, EST, LT, LV 1996-99, ROM 1995-1997, EU-14 except PT and IE 1995-2000) Average cereal yield [t/ha], 1998-2000 (ES, IE, IT 1997-1999, DE 1995-1999, UK 1997-1998, NL 1993-1995, BG, SLO 1996-98; PL 1999-2001)	Share of value added of agriculture in total value added [%], 1999 (ROM 1997) (see Map 4.7)
Health care	Infant mortality rate [Deaths of infants under 1 year of age, per 1,000 live births], 2000 (LT, LV, SLO, EU-24 1999, FR 1997, GR 1998)	
Trans-portation	Number of cars per 1,000 inhabitants, 2001 (LT, PL 2000; LV, ROM 1999) *not included in analysis EU-24!*	

Source: Authors' compilation.

The variables have been selected according to their relevance for rural development and their spatial distribution. Characteristics of rural areas are, in general:

- a low population density, which induces few incentives for investment and difficulties in providing sufficient infrastructure;

- an unfavourable age structure of the population due to higher birth rates and the out-migration of young, skilled people;
- a low GDP per capita;
- still high dependence on agriculture, problems in processing and marketing of agricultural products, and low cereal yields as a proxy for agricultural productivity;
- lacking non-agricultural income opportunities and high unemployment;
- low educational level.

Most of these items are reflected in the used variables, grouped in Table 9.2 into five classes: demography, macro-economy, agriculture, health care and transportation. Some other desirable variables for further differentiation of rural areas, such as farming structure, natural conditions or employment, are not available or complete in the Regio database. Data on roads and railway lines in km per 1,000 inhabitants are not included. Without further distinctions, they are probably misleading because they do not take into account the quality and the usability of the transport infrastructure.

All used variables were checked on their distribution and skewness. The GDP per capita and the population density are very skewed in their distribution – especially on NUTS-2 level. In order to improve the quality of the results, both variables were transformed into logarithms for the NUTS-2 analysis. Furthermore, all variables were standardised by a Z-transformation[13] to ensure an equal weighting in the analysis.

In order to categorise regions with respect to these several characteristics (variables), hierarchical clustering methods were applied. The aim of a cluster analysis is to "partition a set of observations into a distinct number of unknown groups or clusters in such a manner that all observations within a group are similar, while observations in different groups are not similar" (TIMM 2002, p. 515). The degree of homogeneity in one group is defined by the distance between the several observations (here: regions) within a multi-dimensional coordinate system where each axis represents one feature (like GDP per capita). According to its characteristics, each region can be definitely positioned in this multi-dimensional space. The closer regions are to each other the more likely is that they will be in the same group. The distance between regions can be determined by different distance measures. In this chapter, the squared Euclidian distance was applied. The use of this measure is based on the premise that the several variables are linearly independent. In fact, the applied variables show, by and large, only low correlations, (see Table 9.3 and Table 9.4) so that there was no reason to carry out a factor analysis prior to the cluster analysis. As an algorithm for clustering, the Ward method was chosen because with its characteristics, it normally leads best to the desired aim of getting internally homogenous and externally distinguishable groups and regional types, respectively. A hierarchical cluster analysis does not automatically result in one optimal number of clusters. The main approach is that the number of clusters is reduced one by one by merging two existing clusters. In the first step, each region represents a single cluster. After the last step, all regions are included in one cluster. A dendrogram graphically represents the steps in a hierarchical clustering procedure (see Figure A-9.1 and Figure A-9.2 in the annex). The regions are listed on the left hand side, each represented as a separate cluster in the first step. The tree graph shows which two clusters are combined at each step of the procedure until all regions are contained in a single cluster (HAIR et al. 1998, p. 471). There is no singular measure to decide on the most appropriate number of clusters for the research problem investigated. The elbow criterion, i.e., a sudden jump upwards in the agglomeration coefficients (values of distance measured at several clustering steps), provides an indication of the step at which to stop

[13] By a Z-transformation, a variable is standardised such that its mean equals 0 and its standard deviation 1.

the clustering procedure. The dendrogram, different statistical values of the clusters, and the plausibility of the grouping are additional means of deciding on the number of clusters. Since the expert is given the responsibility of choosing distance measure, the algorithm for clustering and the number of groups, a cluster analysis can never be completely objective.

Table 9.3: Pearson correlations between the variables included in the NUTS-2 analysis

	Infant mortality rate, 2000	Unemployment rate, 2001	Percentage share of total population 60 and over, 2000	Percentage share of total population 0-19, 2000	Percentage share of value added of agriculture, 1999	Change in percentage share of value added of agriculture between 1995 and 1999	Percentage share of value added of industry, 1999	Change in percentage share of value added of industry between 1995 and 1999	Change in percentage share of value added of services between 1995 and 1999	Average cereal yields (t/ha), 1998-2000	No. of cars per 1000 inhabitants, 2001	LN of GDP per capita in PPP, 2000	LN of population density, 2000
Infant mortality rate, 2000	1	0.033	0.244 *	0.043	0.653 **	0.126	-0.028	0.012	-0.106	-0.388 **	-0.736 **	-0.569 **	-0.170
Unemployment rate, 2001	0.033	1	-0.004	0.401 **	0.138	0.008	-0.189	-0.184	0.204	-0.361 **	-0.059	-0.422 **	-0.338 *
Percentage share of total population 60 and over, 2000	0.244 *	-0.004	1	-0.514 **	0.381 **	0.225	-0.158	0.055	-0.229	-0.274 *	0.025	-0.298 *	-0.287 *
Percentage share of total population 0-19, 2000	0.043	0.401 **	-0.514 **	1	0.152	-0.531 **	-0.030	0.135	0.237 *	-0.332 **	-0.243 *	-0.406 **	-0.448 *
Percentage share of value added of agriculture, 1999	0.653 **	0.138	0.381 **	0.152	1	0.086	-0.113	0.191	-0.282 *	-0.274 *	-0.408 **	-0.656 **	-0.468 **
Change in percentage share of value added of agriculture between 1995 and 1999	0.126	0.008	0.225	-0.531 **	0.086	1	-0.056	-0.501 **	-0.164	0.153	0.024	0.229	0.399 **
Percentage share of value added of industry, 1999	-0.028	-0.189	-0.158	-0.030	-0.113	-0.056	1	0.231	-0.223	0.301 *	-0.073	0.051	0.002
Change in percentage share of value added of industry between 1995 and 1999	0.012	-0.184	0.055	0.135	0.191	-0.501 **	0.231	1	-0.772 **	0.105	0.018	-0.038	-0.324 **
Change in percentage share of value added of services between 1995 and 1999	-0.106	0.204	-0.229	0.237 *	-0.282 *	-0.164	-0.223	-0.772 **	1	-0.232	-0.038	-0.125	0.077
Average cereal yields (t/ha), 1998-2000	-0.388 **	-0.361 **	-0.274 *	-0.332 **	-0.274 *	0.153	0.301	0.105	-0.232	1	0.259 *	0.541 **	0.427
No. of cars per 1,000 inhabitants, 2001	-0.736 **	-0.059	0.025	-0.243	-0.408 **	0.024	-0.073	0.018	-0.038	0.259 *	1	0.602 **	0.177
LN of GDP per capita in PPP, 2000	-0.569 **	-0.422 **	-0.298 *	-0.406 **	-0.656 **	0.229	0.051	-0.038	-0.125	0.541 **	0.602 **	1	0.655 **
LN of population density, 2000	-0.170	-0.338 **	-0.287	-0.448 **	-0.468 **	0.399 **	0.002	-0.324 **	0.077	0.427 **	0.177	0.655 **	1

Note: * Correlation significant on the level of 0.05 ** Correlation significant on the level of 0.01
Source: Authors' computations based on EUROSTAT's Newcronos Regio data.

Table 9.4: Pearson correlations between the variables in the NUTS-3 analysis

	Unemployment rate, 2001	Population density, 2000	GDP per capita in PPP, 2000	Crude birth rate, 2000	Crude death rate, 2000	Percentage share of value added of agriculture, 1999	Percentage share of value added of industry, 1999
Unemployment rate, 2001	1	-0.184 *	-0.302 **	-0.049	0.087	0.053	-0.362 **
Population density, 2000	-0.184 *	1	0.451 **	-0.310 **	-0.063	-0.279 **	-0.075
GDP per capita in PPP, 2000	-0.302 **	0.451 **	1	-0.412 **	-0.223 **	-0.610 **	0.095
Crude birth rate, 2000	-0.049	-0.310 **	-0.412 **	1	-0.359 **	0.281 **	0.065
Crude death rate, 2000	0.087	-0.063	-0.223 **	-0.359 **	1	0.384 **	-0.290 **
Percentage share of value added of agriculture, 1999	0.053	-0.279 **	-0.610 **	0.281 **	0.384 **	1	-0.352 **
Percentage share of value added of industry, 1999	-0.362 **	-0.075	0.095	0.065	-0.290 **	-0.352 **	1

Note: * Correlation significant on the level of 0.05 ** Correlation significant on the level of 0.01
Source: Authors' computations based on EUROSTAT's Newcronos Regio data.

9.2 Classification results

9.2.1 Results of NUTS-3 analysis

The cluster analysis on the NUTS-3 level revealed five different types of regions as the most adequate result: three are largely rural (cluster A, B and C), one includes both rural and especially industrialised urban areas (cluster D) and one covers only large cities (cluster E). The clusters are ordered according to the respective cluster average of GDP per capita from lowest to highest:

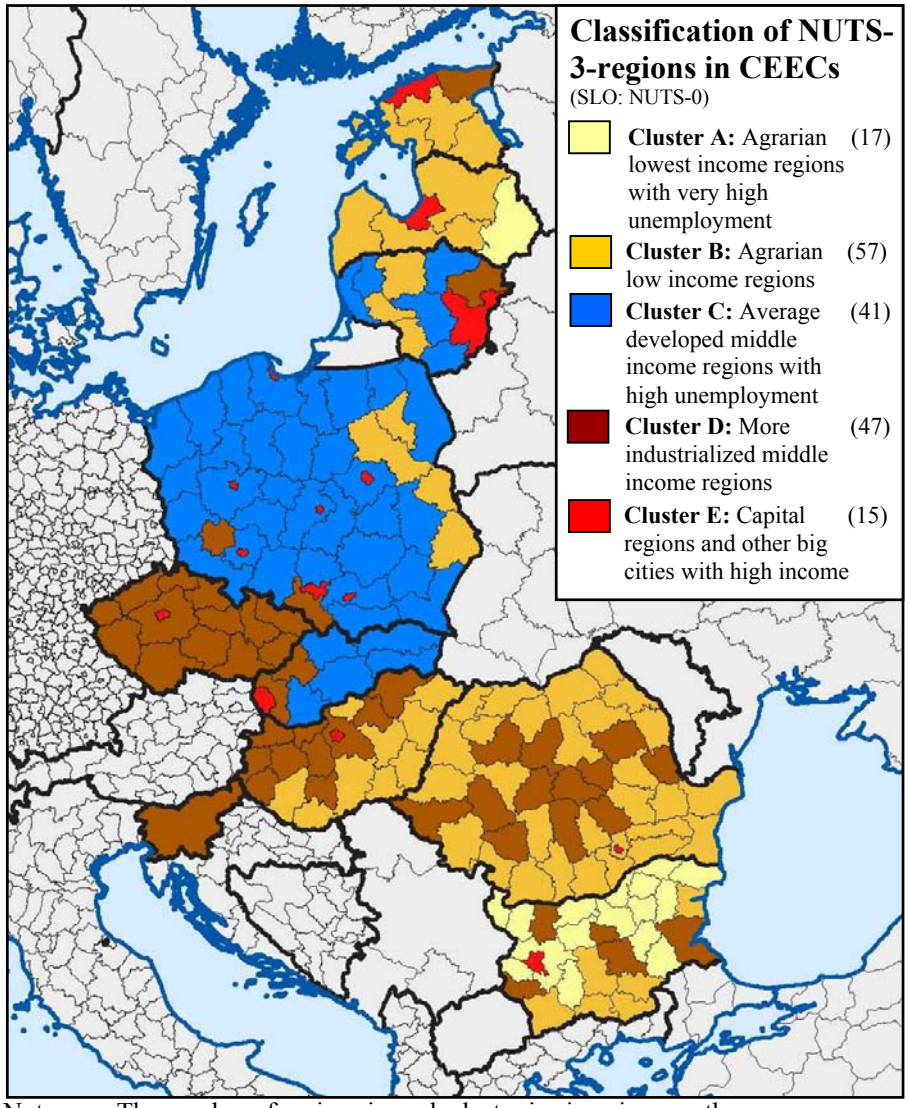
Cluster A: Agrarian lowest income regions with a very high unemployment rate;
Cluster B: Agrarian low income regions;
Cluster C: Average developed middle income regions with a high unemployment rate;
Cluster D: More industrialized middle income regions;
Cluster E: Capital regions and other large cities with high income.

These are visualised in Map 9.1 and characterised as follows (see also Table 9.5):

Cluster A: Agrarian lowest income regions with very high unemployment rate
(wide parts of Bulgaria and one region in Eastern Latvia)

These sparsely populated regions (unweighted average: 57 inhabitants / km^2; weighted average of CEEC-10: 97 inhabitants / km^2) are located particularly in the Northern part of Bulgaria, which has the most important farming area in that country. All over Bulgaria, agriculture still plays an important role. In 2000, this sector accounted for 14.5% of the total GDP and 25.7% of total employment. For many households in rural areas, subsistence farming is a means of survival. In 1999, around one quarter of the total agricultural area was used by small individual farms or household plots which farmed, on average, only one hectare. Within only two years, 1990 to 1992, the employment rate of rural workers declined by 28%, and in many of the mountain regions by 40 to 50%. Besides the deteriorating conditions in agriculture, deindustrialization has contributed to high unemployment (SIEBERT 2001).

Map 9.1: Clusters of NUTS-3 regions in CEEC-10



Note: The number of regions in each cluster is given in parentheses.
Source: WEINGARTEN and BAUM (2003).

Poverty peaked in 1997, with about 41% of the rural population being poor (WORLDBANK 1999). This cluster contains those regions of Bulgaria – besides Latgale in Eastern Latvia – where very unfavourable factors coincide: The high share of agriculture in total value added (26.0%; CEEC-10: 6.3%) is connected with the lowest GDP per capita (PPP 4,739; CEEC-10: PPP 8,694) and the highest unemployment (29.0%; CEEC-10: 13.1%) among all groups. Sufficient job alternatives are widely lacking. The share of industry in value added averages only 21.3% (CEEC-10: 34.6%). A tendency of out-migration likely explains the high share of people aged over 60 (23.1%; CEEC-10: 18.1% – crude death rate 16.0; CEEC-10: 11.0).

Cluster B: Agrarian low income regions
(wide parts of Romania, Southeastern Hungary, parts of Bulgaria, Estonia, Latvia, Poland)

This cluster contains regions which are characterized by a comparatively high importance of agriculture (share of total value added is 22.4%) and low income per capita (PPP 5,390). In contrast to cluster A, this group has, on average, both a higher GDP p.c. and share of industry in value added, as well as a lower unemployment rate (10.0%) and crude death rate (12.0). The unemployment rate shows, however, a high dispersion within this cluster (between 3% in Bihor and Satu Mare in Northwestern Romania, and 28% in Smolyan/Southern Bulgaria). Al-

though being altogether an agrarian cluster, the structure of the agricultural sector is rather heterogeneous. This can be demonstrated by comparing Romania and Hungary, which have the largest share of regions in this cluster. In all of Romania, in which nearly half of the regions of this group are located, about 44% of the total employed labour force worked in agriculture in 2001. High urban unemployment, the good prospects of acquiring land which offers the opportunity to produce food for own needs, and low costs of living in rural areas led to reverse migration from urban to rural areas, and an increasing share of agricultural employment during the 1990's. Romanian agriculture is characterised by a high fragmentation of land and low-input-low-output systems. In contrast, in all of Hungary, (nine regions of the cluster) the share of agricultural employment decreased from about 20% at the beginning of transition to only 5.3% in 2001 (10% in Southern regions, respectively). Hungary's agriculture is, compared to Romania, much more productive and efficient, the institutions necessary for a functioning market economy are much more developed, and large co-operatives and companies play an important role beside family farms (cf. SAILER 2001a; SIEBERT 2001).

Cluster C: Average developed middle income regions with a high unemployment rate
(most of the Polish regions, Eastern Slovakia, parts of Lithuania)

A struggle with high unemployment (21.0% on average) is the most striking unifying feature of the regions forming this cluster. Despite the achieved growth in GDP p.c. since 1993, (after the drastic decline at the beginning of transition) which resulted in an average income of PPP 7,378, economic recovery has generally not led to comparable growth in (formal) employment (cf. KEUNE 2000). The high number of dismissed agricultural and industrial employees, the result of the necessary structural changes and privatisation during the transformation process, could not be absorbed by a sufficient number of new jobs, which caused far reaching social problems. The rather young population – indicated by the low share of population aged 60 and over (16.4%) – aggravates the problem. The shares of the gross value added of the three sectors corresponds strongly with the weighted average shares in all CEECs. The most prosperous sector are the services, which show, in this cluster, the second highest value after cluster E, the capital regions. In 17 of the 41 regions of cluster C, services contributed more than 60% to the total value added. Among these regions are more touristic areas like those in Northern Slovakia and the Baltic coastal regions in Poland, as well as regions with large cities like Kauno and Klaipedos in Lithuania. In Kauno, the share of services in gross value added increased by 9 percentage points between 1995 and 1999, in Slovakia and many Polish regions by 6 percentage points. The industrial sector showed the most striking loss, falling more than 7 percentage points in Slovakia and more than 6 percentage points in Kauno.

Cluster D: More industrialized middle income regions
(Czech Republic, Slovenia, Northwestern Hungary, parts of Romania, Bulgaria, Poland, Slovakia, Northeastern Lithuania, Northeastern Estonia)

The main feature of this cluster is the high percentage share of industry in value added (45.9%; CEEC-10: 34.6%), whereas the shares of agriculture (9.2%) and services (44.9%; CEEC-10: 59.1%) are rather low. Included are regions with a long industrial tradition (like in the Czech Republic), as well as regions which were particularly industrialised during the socialist era (as in Bulgaria). Many of these industrial areas are mono-structured, in a difficult process of diversification and modernisation due to the old technologies used, and have environmental problems. Generally, the privatisation and restructuring processes have been a difficult task for all transition countries. Many of the large industrial plants which were erected at single focal points had to close down or to reduce their production and dismiss many employees. Those laid-off often have specific skills which cannot be easily used in other jobs. Thus, unemployment rates are locally high. Examples of such regions are Northern Bohemia in the Czech Republic with mining, metallurgy, energy and the chemical industry, (unemployment rate 15%) or Upper Silesia in Southern Poland with mining, coal, iron and the steel

industry, (unemployment rate 25%) (cf. FÖRSTER 1999a, b). Industrially-characterised regions in Bulgaria, Slovakia, Estonia and Latvia also have unemployment rates above the cluster average of 10.0%. Low unemployment rates below 10% are likely caused by the size of regions which not only cover the locally-concentrated industrial sites, but also large agricultural areas, such as in Hungary. Moreover, in Romania, unemployment rates are generally low because of the low incentives to register as unemployed, the importance of small family farms for employment, and measures like shortened work schedules. A couple of regions – such as Gliwice in the Western part of Upper Silesia – have been in some ways successful in industrial restructuring. Business start-ups, foreign direct investments (FDI, e.g., in the automobile industry) and the expansion of motorways and educational institutions have contributed to a more positive development (DOMANSKI 1998). In general, the "more industrialised middle-income regions" have a better infrastructure and educational level, higher population density, and a higher GDP p.c. (PPP 8,895, which is slightly above the CEEC-10 average) than agrarian regions. Despite existing problems, this is a decisive advantage in overcoming structural change and stimulating new economic activities.

Cluster E: Capital regions and other large cities with high income

This cluster includes those regions which have benefited most from the transition process – the capitals and other large cities with, on average, an increasing high income (PPP 15,757), a high share of services in total value added (71.8%), a rather low unemployment rate (9.0%), a well-developed infrastructure and high population density (2,163 inhabitants / km^2). In general, the capital regions have been rather successful in attracting foreign direct investments (FDI) (cf. section 4.5). For example, in Slovakia, in 1995, 60% of the total FDI was invested in Bratislava (SMITH und FERENCIKOVA 1998). In Poland, FDI concentrated on Warsaw and other large cities and western parts of the country (cf. PÜTZ 1998). In Hungary, the strong concentration of FDI in Budapest, (about two thirds of foreign capital in the mid-1990s) and other Northwest regions has fallen since 1995 (cf. SAILER 2001b). Since the beginning of transition, the disparities between the booming capitals and the rest of the countries have increased in most countries, and have been particularly pronounced in Latvia and Poland (cf. Figure 4.1 and Table 4.2). This corresponds to the priority of macroeconomic growth over regional balance in the CEECs. Although the capitals and large cities are the most prosperous regions, they are also confronted with problems. In Budapest, for example, there exists difficulties with derelict buildings in the downtown area, and increasing social polarisation within the city (WIEßNER 1999). Suburbanisation has begun to take place, from which the regions surrounding large cities benefit (cf. BROWN and SCHAFFT 2002 for Hungary).

Table 9.5: Characteristics of the 5 clusters of NUTS-3 analysis (CEEC-10)

Cluster (number of regions) with characteristics		Included in the cluster analysis							Additional information [5]	
		Population density [inh./km²]	Crude birth rate	Crude death rate	GDP per capita [PPP]	Unemployment rate [%]	Share of value added of industry [%]	Share of value added of agriculture [%]	Share of value added of services [%]	Share of population aged 60 and over [%]
		2000	2000	2000	2000	2001	1999 [1]	1999 [1]	1999 [1]	2000 [2]
A (17)	Average [3]	57.2	8.8	16.0	4,739.0	29.0	21.3	25.8	52.9	23.1
	Minimum	26.4	6.9	13.0	2,674.0	16.0	8.7	6.1	40.2	19.0
	Maximum	98.9	11.6	21.0	5,823.0	43.0	33.5	47.6	74.0	29.8
	Variation coefficient	0.29	0.13	0.13	0.16	0.21	0.35	0.40	0.16	0.15
B (57)	Average [3]	71.9	10.4	12.0	5,390.0	10.0	31.0	22.4	46.5	19.5
	Minimum	14.9	7.7	9.0	3,428.0	3.0	19.5	1.1	26.3	14.5
	Maximum	173.2	14.8	16.0	9,890.0	28.0	40.0	49.1	65.7	26.4
	Variation coefficient	0.45	0.13	0.17	0.27	0.60	0.17	0.44	0.24	0.12
C (41)	Average [3]	96.7	10.3	9.0	7,378.0	21.0	35.0	7.1	57.9	16.4
	Minimum	37.2	8.6	8.0	5,530.0	13.0	26.1	3.5	46.0	13.7
	Maximum	190.0	13.2	12.0	10,320.0	31.0	44.3	13.3	66.6	20.3
	Variation coefficient	0.37	0.11	0.11	0.15	0.19	0.13	0.38	0.10	0.10
D (47)	Average [3]	107.0	9.4	12.0	8,895.0	10.0	45.9	9.2	44.9	18.7
	Minimum	27.7	7.2	8.0	4,837.0	3.0	35.7	0.8	29.0	15.4
	Maximum	324.1	11.9	17.0	15,255.0	28.0	56.7	21.5	61.3	25.2
	Variation coefficient	0.47	0.11	0.17	0.30	0.60	0.10	0.60	0.16	0.13
E (15)	Average [3]	2,162.9	8.0	11.0	15,757.0	9.0	27.5	0.8	71.8	18.1
	Minimum	91.9	6.8	9.0	8,081.0	2.0	17.0	0.0	60.2	14.9
	Maximum	8,780.0	9.3	14.0	27,141.0	21.0	39.8	3.3	82.9	21.6
	Variation coefficient	0.99	0.09	0.18	0.38	0.56	0.24	1.25	0.09	0.12
All (177)	Average [3]	262.8	9.8	12.0	7,597.0	14.0	34.7	13.8	51.5	18.8
	Minimum	14.9	6.8	8.0	2,674.0	2.0	8.7	0.0	26.3	13.7
	Maximum	8,780.0	14.8	21.0	27,141.0	43.0	56.7	49.1	82.9	29.8
	Variation coefficient	3.19	0.14	0.17	0.50	0.64	0.27	0.79	0.23	0.15
CEEC-10 [4]		97.0	9.7	11.0	8,694.3	13.1	34.6	6.3	59.1	18.1
EU-15 [4]		118.7	10.7	9.9	22,602.8	7.6	27.7	2.1	70.3	21.8 [6]

Notes: [1] H 1998, ROM 1997. [2] H, LV 1999, EST 2001. For Poland, no data were available on NUTS-3 level, so that the values of the NUTS-2 regions had to be used for the respective NUTS-3 regions. [3] Unweighted arithmetic mean value. [4] Weighted arithmetic mean value. [5] Not included in the analysis. The share of value added of services is indirectly considered since it adds up to 100% with the shares of value added of agriculture and industry. Data on the share of population 60 and over are missing for some regions. [6] Projection of 1995 (EUROSTAT).

Source: WEINGARTEN and BAUM (2003).

9.2.2 Results of NUTS-2 analysis

The analysis of NUTS-2 level draws a rather rough picture in comparison to the NUTS-3 analysis, because the regional units are larger and more heterogeneous. Although the NUTS-2 analysis also yields five clusters which mirror, to some extent, similar patterns as the NUTS-3 analysis, there are some differences in terms of their characteristics and geographical location. Again, the groups are ordered according to the average GDP per capita of the respective cluster (lowest to highest):

Cluster 1: Peripheral agrarian low income regions;
Cluster 2: Less populated regions with high unemployment and rather unfavourable conditions for crop production;
Cluster 3: Middle income regions with high unemployment;
Cluster 4: More industrialized and advanced regions;
Cluster 5: Capital regions and other regions with a high share of services and income.

They are visualised in Map 9.2 and characterised as follows (see also Table 9.6):

Map 9.2: Clusters of NUTS-2 regions in CEEC-10

Note: The number of regions in each cluster is given in parentheses.
Source: Author´s computations based on EUROSTAT's Newcronos Regio data.

Cluster 1: Peripheral agrarian low income regions
(Romania and Bulgaria)

With this cluster, the two candidate countries Bulgaria and Romania, which plan to accede to the European Union no sooner than 2007, are separated from the remaining CEECs, which accede in May 2004. Except the Capital regions and Burgas in Bulgaria, these two countries belong, as a whole, to cluster 1. The GDP p.c. is the lowest of all groups (unweighted average: PPP 5,248; weighted average of CEEC-10: PPP 8,694) and the share of agriculture in total employment (41.3%; CEEC-10: 21.4%) and in total value added (22.0%; CEEC-10: 6.3%) is the highest of all groups. The share of agriculture in total value added has, on average, even slightly increased as opposed to declining like in all other clusters. The share of services in total value added is the lowest (42.4%; CEEC-10: 59.1%). Rather unfavourable conditions are also shown in the high infant mortality rate (17.2; CEEC-10: 11.0), the average low number of cars (167 cars/1,000 inhabitants; all regions: 260 cars/1,000 inhabitants), the rather high share of the population with a low educational level (27.3%; all regions: 18.2%) and the low share of the population with a high educational level (12.6%; all regions: 19.3%). Differences that exist within this cluster regarding unemployment are caused by a generally high unemployment rate in Bulgaria, (19.9%) as opposed to low unemployment rates in Romania (6.6%) (cf. cluster D).

Cluster 2: Less populated regions with high unemployment and rather unfavourable conditions for crop production (Baltic states and Southeastern Bulgaria)

Cluster 2 concentrates mainly on regions in the Baltic States, which are characterised by a very low population density (33 inhabitants / km^2; CEEC-10: 97 inhabitants / km^2), a relatively low GDP p.c. (PPP 5,665) and the lowest average cereal yield of all groups (2.0 t/ha; all regions: 2.9 t/ha) as a proxy for agricultural potential and productivity. Climate conditions are rather unfavourable for agriculture, with cool, moist summers and short growing seasons. Nevertheless, the share of agriculture in total value added is, with 14.3% on average, still relatively high. Unemployment lays, with 18.6%, above the average of CEEC-10 (13.1%). A positive factor is the relatively high share of the population with a high educational level (33.5%). The inclusion of Burgas (Southeastern Bulgaria) in this, and not the preceding cluster, is likely caused by the considerably higher GDP per capita of this region in comparison to the other regions in cluster 1, on average.

Cluster 3: Middle income regions with high unemployment
(Poland and Slovakia)

This group corresponds to cluster C of the NUTS-3 analysis. The most remarkable characteristic is the high unemployment rate (19.7%), while the other variables show more or less mean values. The GDP p.c. is, with PPP 8,152, slightly below average. The population has a relatively young age structure, with 28.3% of the population aged 0-19, (CEEC-10: 25.9) and only 16.0% aged 60 and over (CEEC-10: 18.1%). Agriculture has a share in total value added of no more than 5.3%, but still a relatively high share in employment of 17.4%. The services in this cluster show the strongest growth of all groups (5.6 % points; CEEC-10: 5.2 % points) and the second highest share in total value added after the large cities (60.0%). A rather unfavourable aspect for development is the low share of the population with a high educational level (11.0%) .

Cluster 4: More industrialized and advanced regions
(Czech Republic, Hungary and Slovenia)

Included in this cluster are the three countries with the highest GDP per capita of all CEECs (cluster average PPP 10,478). The regions are characterised by the lowest infant mortality rate (6.4) and unemployment rate, (7.9%) as well as the highest average cereal yield (4.2 t/ha) of

all groups. The industrial sector has a significant economic importance, with its share in total value added of 42.3% (CEEC-10: 34.6%). Therewith, it corresponds to cluster D in the NUTS-3 analysis. However, the specific problems of concentrated industrial sites do not appear in the same intensity on this level as with rather large heterogeneous regions. An interesting finding is the low share of the population with a high educational level (11.0%) in these areas. Services have a share in total value added below average, (51.9%) with the lowest growth within the last five years of all groups (+1.2%). Also, agriculture is, with a share of 6.3% of total employment and 5.8% of total value added, of only minor importance in these regions.

Cluster 5: Capital regions and other regions with high share of services and income

The highest values in GDP per capita (PPP 12,973), population density (450 inhabitants / km^2), number of cars (312 cars/1,000 inhabitants), and share of services in total value added (69.7%) characterise the winners of the transition process, the regions around the capitals and other large cities (cf. cluster E in NUTS-3 analysis). The economic importance of agriculture (share in total value added 3.2%) and industry (share in total value added 27.1%) is rather small, and continues to decrease, especially in the industrial sector (-3,8%; CEEC-10: -3.1%). Unemployment rates are relatively low, (9.8%) however, with a high dispersion within the cluster. The relatively low share of population aged 0-19 (23.8%) indicates low birth rates. Owing to a good educational infrastructure in the city regions, the share of the population with a low educational level is, with 13.5% on average, the lowest of all groups.

Table 9.6: Characteristics of the 5 clusters of NUTS-2 analysis (CEEC-10)

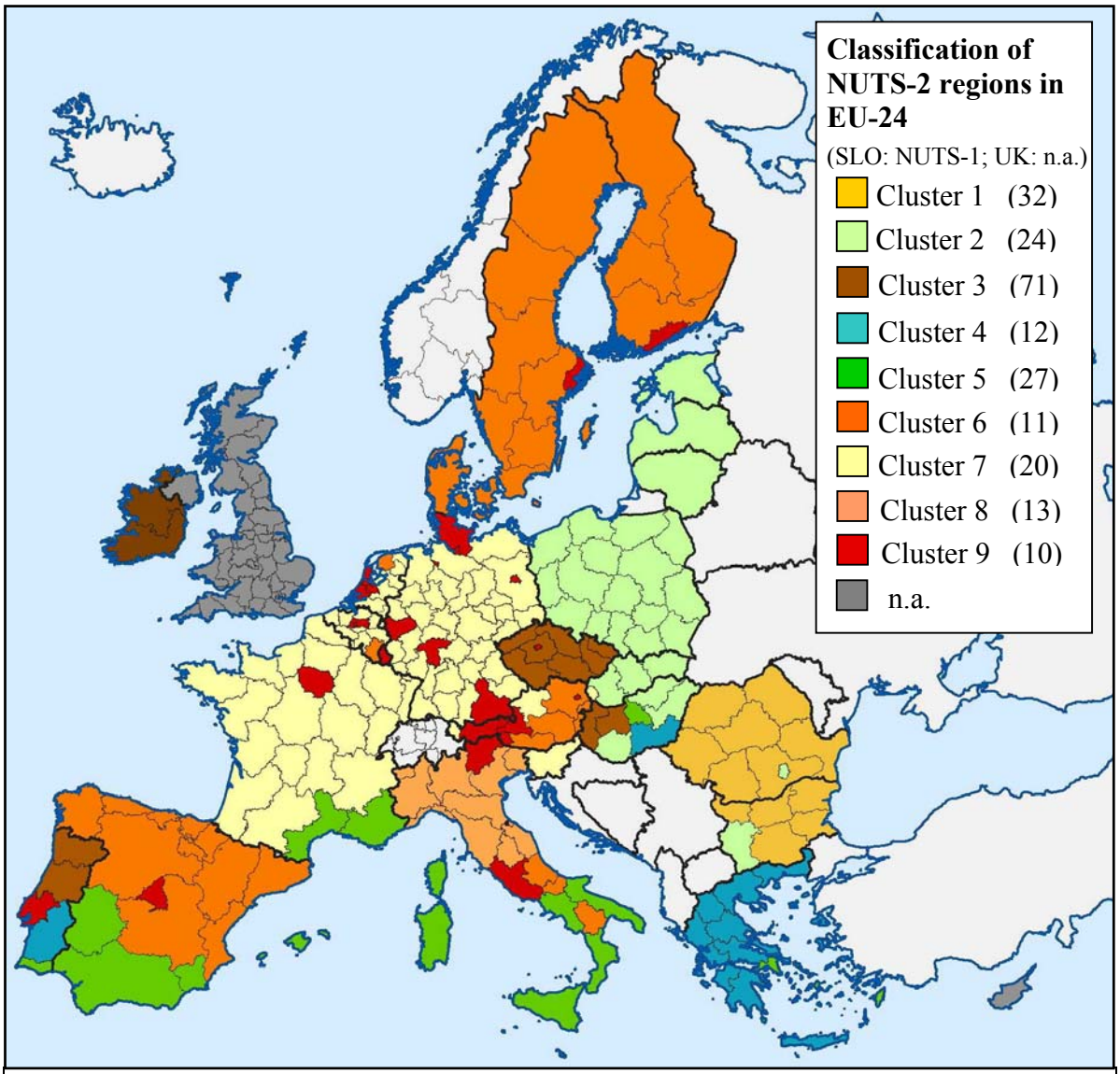
Cluster (number of regions) with characteristics		Included in the cluster analysis													Additional information [7]			
		Population density [inh./km²]	Share of total population aged 60 and over [%]	Share of total population aged 0-19 [%]	Infant mortality rate	GDP per capita [PPP]	Unemployment rate [%]	Average cereal yield [t/ha]	No. of cars per 1,000 inhabitants	Absolute change in percentage share of value added of agriculture [% points]	Absolute change in percentage share of value added of industry [% points]	Absolute change in percentage share of value added of services [% points]	Share of value added of agriculture [%]	Share of value added of industry [%]	Share of value added of services [%]	Share of agricultural employment [%]	Population 20-59 with low education [%]	Population 20-59 with high education [%]
		2000	2000 [1]	2000 [1]	2000 [2]	2000	2001	1998 to 2000 [3]	2001 [4]	1999 to 1995 [5]	1999 to 1995 [5]	1999 to 1995 [5]	1999 [6]	1999 [6]	1999 [6]	2001	2001	2001
1 (11)	Average [8]	78.0	20.3	25.0	17.2	5247.8	13.7	2.5	166.5	0.4	-3.3	2.9	22.0	35.6	42.4	41.3	27.3	12.6
	Minimum	54.9	17.3	21.3	11.6	4174.6	4.8	2.3	77.0	-5.4	-7.2	-1.4	15.9	23.2	32.5	26.5	21.9	7.2
	Maximum	103.8	27.3	29.3	23.0	6244.1	32.8	2.8	246.5	4.7	2.3	8.7	26.0	46.2	50.8	59.8	33.8	21.4
	Var. coeff.	0.19	0.16	0.09	0.17	0.11	0.73	0.08	0.35	8.25	-0.85	0.97	0.15	0.17	0.15	0.27	0.12	0.40
2 (16)	Average [8]	33.1	20.4	27.5	9.8	5664.8	18.6	2.0	276.7	-4.5	0.9	3.6	14.3	33.4	52.3	14.9	14.5	33.5
	Minimum	14.9	17.6	23.9	6.5	2674.4	9.9	1.4	166.8	-11.1	-13.5	-8.9	1.1	20.0	41.3	7.1	11.5	18.0
	Maximum	56.2	22.9	30.7	16.5	7231.1	28.6	3.1	393.5	-0.1	11.6	15.4	27.4	49.7	74.0	34.9	30.9	46.6
	Var. coeff.	0.40	0.07	0.07	0.27	0.24	0.29	0.25	0.20	-0.69	6.89	1.61	0.56	0.26	0.17	0.44	0.37	0.38
3 (17)	Average [8]	124.7	16.0	28.3	8.2	8151.8	19.7	3.0	241.8	-2.8	-2.9	5.6	5.3	34.7	60.0	17.4	17.0	11.0
	Minimum	60.6	14.1	25.8	5.8	6260.5	12.8	2.1	150.5	-5.6	-8.7	-0.4	1.6	27.2	51.0	5.4	12.7	8.9
	Maximum	395.1	18.4	31.1	13.0	9912.5	24.1	4.2	311.1	1.2	2.3	9.3	9.5	41.4	64.8	38.0	23.6	14.1
	Var. coeff.	0.63	0.08	0.05	0.27	0.15	0.16	0.20	0.15	-0.79	-1.14	0.45	0.42	0.12	0.07	0.64	0.20	0.16
4 (14)	Average [8]	107.8	18.7	24.0	6.4	10477.9	7.9	4.2	291.5	-1.6	0.4	1.2	5.8	42.3	51.9	6.3	20.6	11.0
	Minimum	66.8	16.4	23.0	3.2	7329.5	3.2	3.2	186.5	-3.3	-4.7	-4.2	0.8	29.2	46.5	2.6	10.4	7.1
	Maximum	230.5	20.7	26.4	10.0	15255.2	13.6	5.3	444.2	-0.2	7.0	5.0	11.3	51.0	61.3	10.3	32.1	14.6
	Var. coeff.	0.38	0.06	0.04	0.41	0.20	0.39	0.14	0.26	-0.69	8.25	2.17	0.50	0.17	0.11	0.35	0.39	0.16
5 (12)	Average [8]	450.4	18.9	23.8	8.3	12973.0	9.8	2.5	312.1	-1.3	-3.8	5.1	3.2	27.1	69.7	10.7	13.5	28.2
	Minimum	77.3	15.9	19.9	2.3	7731.5	2.0	1.5	201.0	-2.9	-8.2	0.9	0.1	17.0	58.3	0.7	5.3	12.3
	Maximum	2387.5	20.8	28.2	12.9	26855.2	19.6	4.3	463.9	0.1	-0.7	9.0	7.0	39.5	82.9	20.4	19.6	46.6
	Var. coeff.	1.54	0.08	0.10	0.35	0.46	0.53	0.32	0.22	-1.00	-0.55	0.47	0.63	0.22	0.10	0.66	0.33	0.44
All (70)	Average [8]	148.9	18.7	26.0	9.6	8418.7	14.4	2.9	259.9	-2.2	-1.6	3.8	9.8	34.7	55.5	17.2	18.2	19.3
	Minimum	14.9	14.1	19.9	2.3	2674.4	2.0	1.4	77.0	-11.1	-13.5	-8.9	0.1	17.0	32.5	0.7	5.3	7.1
	Maximum	2387.0	27.3	31.1	23.0	26855.2	32.8	5.3	463.9	4.7	11.6	15.4	27.4	51.0	82.9	59.8	33.8	46.6
	Var. coeff.	2.10	0.13	0.10	0.44	0.46	0.51	0.31	0.29	-1.27	-2.69	1.00	0.82	0.23	0.19	0.80	0.38	0.66
CEEC-10 [9]		97.0	18.1	25.9	11.0	8694.3	13.1	.	.	-2.1	-3.1	5.2	6.3	34.6	59.1	21.9	.	.
EU-15 [9]		118.7	21.8 [10]	.	7.6	22602.8	7.6	.	.	.	.	.	.	.	.	4.1	34.2	22.3

Notes: [1] EST 2001, LV 1999. [2] LT, LV, SLO 1999. [3] BG, SLO 1996 - 1998; PL 2000; LV, ROM 1999. [4] LT, PL 2000; LV, ROM 1999. [5] BG, EST, LT, LV 1996-1999; ROM 1997-1999. [6] ROM 1997. [7] Not included in the analysis. The share of value added of services is indirectly considered, since it adds up to 100% with the shares of value added of agriculture and industry. Data on share of agricultural employment, and the share of Population 20-59 with low and high education are missing for some regions (Baltic States only with values for the whole country, concerning cluster 2 and 3; agricultural employment estimated for Bulgaria). [8] Unweighted arithmetic mean value. [9] Weighted arithmetic mean value. [10] Projection of 1995 (EUROSTAT).

Source: Authors' computations based on EUROSTAT's Newcronos Regio data.

To provide insight on the similarities of, and differences between rural areas in all of Europe, an additional cluster analysis on NUTS-2 level, including the EU Member States, (without the United Kingdom due to a lack of data) alongside the CEECs was carried out. First results indicate a tendency to separate the CEE regions from those of the EU. The differences in GDP p.c. can be clearly seen (see Map 9.3 and Table 9.7 with the clusters ordered according to average GDP per capita of the respective cluster from lowest to highest).

Map 9.3: Clusters of NUTS-2 regions in EU-24 (without the UK)



1. Agrarian lowest income regions with low cereal yields (as a proxy for agricultural productivity) and high infant mortality
2. Low income regions with high unemployment, average shares of the economic sectors and young population
3. More industrialised regions with rather low unemployment and below-average income
4. Low populated regions with an income below average, a decreasing share of agriculture and strongly expanding share of services
5. Touristic middle income regions with an income slightly below average and high share of services
6. Developed, less populated middle income regions with an over-aged population
7. Developed and densely populated high income regions with low share of agriculture but highest cereal yields
8. Developed high income regions with an over-aged population and low unemployment
9. Capitals and other highest income regions with very high share of services and low unemployment

Note: The number of regions in each cluster is given in parentheses.
Source: WEINGARTEN and BAUM (2003).

Table 9.7: Characteristics of the 9 clusters of NUTS-2 analysis (EU-24)

Cluster (number of regions) with characteristics		Included in the cluster analysis												Add.[6]
		Population density [inh./km²]	Share of total population aged 60 and over [%]	Share of total population aged 0-19 [%]	Infant mortality rate	GDP per capita [PPP]	Unemployment rate [%]	Average cereal yield [t/ha]	Absolute change in percentage share of value added of agriculture [% points]	Absolute change in percentage share of value added of industry [% points]	Absolute change in percentage share of value added of services [% points]	Share of value added of agriculture [%]	Share of value added of industry [%]	Share of value added of services [%]
		1999	2000 [1]	2000 [1]	2000 [2]	2000	2001	1998-2000 [3]	1999-1995 [4]	1999-1995 [4]	1999-1995 [4]	1999 [5]	1999 [5]	
1 (12)	Average [7]	76.2	20.3	25.0	17.1	5328.6	14.5	2.5	0.1	-2.0	1.9	22.5	35.1	42.4
	Minimum	54.9	17.3	21.3	11.6	4174.6	4.8	2.3	-5.4	-7.2	-8.9	15.9	23.2	32.5
	Maximum	103.8	27.3	29.3	23.0	6244.1	32.8	2.8	4.7	11.6	8.7	27.1	46.2	50.8
	Var. coeff.	0.20	0.15	0.09	0.16	0.11	0.68	0.04	32.00	-2.55	2.26	0.16	0.17	0.14
2 (27)	Average [7]	153.2	17.3	27.0	8.6	8293.3	16.8	2.9	-2.6	-2.5	5.1	5.5	33.4	61.1
	Minimum	30.3	14.1	21.5	5.8	6260.5	4.1	1.7	-5.6	-8.7	-0.4	1.6	22.3	51.0
	Maximum	1251.5	21.2	31.1	13.0	13351.8	24.1	5.3	1.2	3.4	9.3	10.1	41.4	72.4
	Var. coeff.	1.50	0.12	0.09	0.21	0.17	0.32	0.28	-0.73	-1.24	0.53	0.42	0.15	0.08
3 (13)	Average [7]	110.8	19.8	24.9	5.4	13194.0	6.4	4.2	-2.0	1.0	0.9	5.0	44.6	50.4
	Minimum	53.3	16.4	21.9	3.2	10170.4	2.4	2.3	-6.4	-4.7	-4.2	2.4	36.6	46.5
	Maximum	230.5	27.4	31.8	10.0	28571.1	13.6	6.6	-0.2	7.0	5.0	8.0	51.0	58.5
	Var. coeff.	0.45	0.17	0.12	0.37	0.39	0.56	0.26	-0.85	3.50	2.78	0.36	0.10	0.09
4 (13)	Average [7]	54.6	25.0	21.8	6.4	13321.4	9.3	3.2	-3.7	-2.0	5.7	12.5	22.8	64.7
	Minimum	19.5	20.7	19.6	4.1	8523.4	5.7	1.1	-10.9	-9.1	1.0	7.5	9.7	51.2
	Maximum	96.0	29.6	24.0	10.0	17264.0	15.8	7.1	2.2	6.5	11.5	19.6	39.1	82.6
	Var. coeff.	0.41	0.11	0.07	0.30	0.17	0.34	0.53	-0.95	-1.95	0.47	0.28	0.36	0.15
5 (20)	Average [7]	188.2	26.5	24.3	5.6	16990.1	12.4	2.5	-.8	-0.8	1.5	4.7	18.4	76.9
	Minimum	16.8	16.1	20.9	3.4	11683.4	1.3	0.3	-2.8	-3.6	-1.2	.4	7.6	65.6
	Maximum	905.9	37.3	31.4	9.5	31463.4	24.8	5.3	0.6	1.8	4.4	11.0	27.7	86.1
	Var. coeff.	1.10	0.23	0.10	0.32	0.25	0.62	0.48	-0.88	-1.75	1.07	0.62	0.24	0.07
6 (32)	Average [7]	72.3	37.7	22.3	3.9	19933.5	8.4	3.9	-0.9	0.2	0.6	4.6	32.8	62.6
	Minimum	3.3	28.1	16.8	1.2	14624.9	2.8	1.5	-2.5	-3.5	-1.6	1.3	24.2	55.0
	Maximum	284.0	45.0	28.3	6.8	26803.3	15.7	7.9	0.4	3.0	3.1	11.1	41.2	72.0
	Var. coeff.	0.88	0.11	0.13	0.33	0.14	0.48	0.44	-0.78	6.50	1.83	0.52	0.13	0.07
7 (71)	Average [7]	219.6	25.8	23.4	4.5	21112.7	7.3	6.8	-0.4	-1.5	2.0	2.6	31.6	65.8
	Minimum	42.0	15.9	19.3	2.8	14502.4	1.9	3.5	-3.7	-7.6	-5.1	.3	16.9	54.1
	Maximum	995.6	38.3	30.6	7.1	30320.2	16.9	9.4	0.3	5.3	7.5	11.0	43.3	78.7
	Var. coeff.	0.72	0.19	0.10	0.20	0.17	0.52	0.18	-1.50	-1.33	0.95	0.69	0.18	0.08
8 (10)	Average [7]	186.3	44.7	16.4	4.4	26301.8	4.5	6.2	-0.5	-2.5	3.0	2.4	29.3	68.3
	Minimum	36.8	37.8	14.0	2.0	22734.4	3.5	3.5	-1.2	-6.5	1.2	1.4	18.7	62.1
	Maximum	379.0	53.1	18.0	6.7	30401.8	6.0	9.5	0.1	-0.6	6.4	3.5	35.0	79.9
	Var. coeff.	0.53	0.11	0.08	0.30	0.09	0.18	0.37	-0.60	-0.68	0.50	0.29	0.20	0.09
9 (24)	Average [7]	1153.9	28.1	22.0	4.3	30740.5	5.5	5.8	-0.2	-1.7	1.9	1.0	21.3	77.7
	Minimum	52.7	16.0	18.1	2.3	20538.1	1.2	2.8	-0.9	-3.7	-1.1	0.0	12.1	69.7
	Maximum	5913.6	36.5	26.3	5.5	49190.9	12.5	8.4	0.1	1.1	3.7	3.3	30.1	87.8
	Var. coeff.	1.29	0.19	0.10	0.21	0.23	0.60	0.33	-1.50	-0.76	0.68	0.90	0.22	0.06
All (222)	Average [7]	263.2	27.0	23.4	5.9	18513.6	9.2	4.8	-1.0	-1.3	2.3	5.0	30.0	64.9
	Minimum	3.3	14.1	14.0	1.2	4174.6	1.2	0.3	-10.9	-9.1	-8.9	0.0	7.6	32.5
	Maximum	5913.6	53.1	31.8	23.0	49190.9	32.8	9.5	4.7	11.6	11.5	27.1	51.0	87.8
	Var. coeff.	2.25	0.30	0.14	0.58	0.42	0.65	0.46	-1.80	-2.00	1.13	1.06	0.27	0.16

Notes: [1] EST 2001, LV 1999. [2] LT, LV, SLO 1999. [3] BG, SLO 1996 - 1998; PL 2000; LV, ROM 1999. [4] BG, EST, LT, LV 1996-1999; ROM 1997-1999. [5] ROM 1997. [6] Not included in the analysis. The share of value added of services is indirectly considered, since it adds up to 100% with the shares of value added of agriculture and industry. [7] Unweighted arithmetic mean value.

Source: Authors' computations based on EUROSTAT's Newcronos Regio data.

Only the capitals Prague, (cluster 9) Bratislava (cluster 7) and Budapest, (cluster 5) as well as Slovenia, (cluster 7) belong to clusters dominated by EU regions with high or middle incomes relative to the EU-24 average. The Czech Republic, except for its capital, and West-Hungary are, together with Ireland and Northern Portugal, included in the more industrialised cluster 3, which already has an income below average. In the two groups with the lowest GDP p.c., there are only Central and Eastern European regions: The first cluster incorporates the agrarian lowest income regions of Romania and Bulgaria, and the second cluster low income regions with high unemployment in Poland, Slovakia and the Baltic States, as well as Sofia and Bucharest. Two clusters (6 and 8) cover only regions of the current EU Member States especially characterised by a rather old population structure. The result reveals large differences in development between the regions of the European Union and the new Member States.

9.3 Critical assessment of the results

In principle, the method of cluster analysis can be considered as suitable for classifying regions. However, the resulting typology is always the specific outcome of the used algorithms and variables. Other indicators or procedures could lead to other classifications. The restricted data availability on a disaggregated level constrained the analysis of this chapter. Additional variables for further differentiation, especially of rural areas – such as farm structure and efficiency, natural conditions and employment – would have been desirable. The typology would be further enhanced if data on the NUTS-4 or even NUTS-5 regions could be used, where the single units have a higher rate of internal homogeneity.

The three classifications revealed large differences between the several countries, which influenced the cluster result. The country averages in CEE vary, for instance, in unemployment, between 6% in Slovenia and Hungary and 20% in Bulgaria. Divergent definitions or approaches of collecting statistical data can also play a role and affect the outcome. In Romania, for example, the low unemployment rates are mainly explainable by the low incentives to register as unemployed (cf. cluster D of NUTS-3 analysis). Partially, the high dispersion of variables within the whole sample also caused a relatively high dispersion of specific variables within the clusters. However, only in 3 out of 35 cases at the NUTS-3 analysis, and in 11 out of 65 cases at the NUTS-2 analysis, the variance of a variable in a cluster is higher than the variance of that variable in the whole sample.

With the typologies in this chapter a categorisation of regions according to demographic and socio-economic criteria was achieved. The results confirm that rural areas cannot be considered homogeneous and that general statements like "over-aged population" are not appropriate. First clues for the elaboration of rural development measures are especially provided with the NUTS-3 analysis. For example, educational measures should be adapted to the age structure of regions and the necessary structural change should be particularly supported in still strong agrarian regions. However, in order to design concrete policy measures adopted to the peculiarities of the specific regions, more detailed cluster analyses – on a more disaggregated regional level including additional variables – proved to be necessary. It would be useful to concentrate thereby on single countries with their specific problems. That would also reduce the differences in development within the whole sample, as well as the statistical difficulties of comparability. Problems of data availability on a highly disaggregated level have to be solved. Furthermore, it will be an important task of future research to evaluate rural development measures in the CEECs and to investigate the impacts of different regional types.

10 SUMMARY OF FINDINGS

The aim of this study is to analyse the *current situation and future prospects of rural areas* in those eight Central and Eastern European countries (CEECs) which will accede into the European Union on May, 1st, 2004 – Estonia, Lithuania, Latvia, Poland, the Czech Republic, Slovakia, Hungary and Slovenia – as well as Romania and Bulgaria, which will likely become EU members in 2007.[14] The study is mainly based on background information provided by the country experts of the *Network of Independent Agricultural Experts in the CEE Candidate Countries* and on data taken from Eurostat's NewCronos Regio database.

Definition of rural areas

Defining rural areas as a basis for this report proved to be a difficult task, as explained in chapter 2. Although the term "rural area" is often used in policy circles as well as in the scientific community and public debates, there is *no unequivocal definition* of this term, which often merges regions with many diverse features. In the CEECs, just as in the EU-15, a wide range of different definitions of rural areas exist. Some of the CEECs use (partially rather vague) definitions which are accepted in their respective country. Others apply definitions in accordance with OECD and/or EUROSTAT. The latter two organisations' definition uses population density as the crucial defining criterion, which is not unproblematic. Densities vary enormously across the different European countries, and for that reason, a certain threshold is not suitable for each country. Furthermore, functional and structural aspects of rural areas are not included in this definition. However, the more complex the definition, the higher the data requirements; the more a definition is adapted to the specific situation of single countries, the lower the comparability. Therefore, despite the shortcomings, the OECD and EUROSTAT definitions provide a frame for rough international comparisons which can be extended or adapted. However, identifying rural areas for the purpose of elaborating or adjusting development measures requires more sophisticated definitions and classifications of the term "rural regions". Due to the differences and peculiarities of the various countries, a universal approach of one single, detailed definition for all countries seems unreasonable. While interpreting figures for rural areas within this report, one should bear in mind that there are differences between the several CEECs in the definition of rurality. Nevertheless, the statistical data collected in the expert surveys are useful for comparing rural areas with the whole country.

Situation and developments of farm economic performance and its effects on rural areas

In general, the importance of agriculture declines relatively to that of other industries during the course of economic development in any given country. Nevertheless, in the medium–term, agriculture will still play an important role in most of the rural areas in Central and Eastern Europe. Thus, chapter 3 examines the situation and developments of farm economic performance and its effects on rural areas.

The dual ***farm structure*** is undoubtedly one of the specific features of agriculture in the CEECs. This holds with regard to the size of the farms – CEECs have many small ones, which are often subsistence or part-time-oriented, and very large enterprises. Duality is also observed in terms of ownership. In addition, land fragmentation is another dual characteristic of CEECs' agriculture. The large holdings cultivate considerable lot sizes, while the small ones operate on very small plots - too small to use large machinery. Hence, structural improvements also include the development of larger plot sizes. This encompasses changes in fragmented ownership as well. In all countries, the privatisation processes have almost completely wiped out state farms. Large-scale farming is still, however, an important feature of agriculture in a number of the new Member States. High shares in total land cultivated by co-

[14] Despite the different status of these two groups of countries with regard to their accession status, these 10 CEECs are also referred to as new Member States in this report for better readability.

operatives and commercial companies characterize the farm sector in Slovakia (76%), Bulgaria (74%), the Czech Republic (72%) and Hungary (50%). There is a strong expectation among the country experts that in the next few years, the number of smallest farms will decrease; and, to an even larger extent, agricultural land will be moved to larger holdings.

Besides land and labour, ***capital stock*** is also important for further development of a farm. While land and labour are abundantly available to agriculture in some CEECs, capital is not. Polish, Hungarian and Czech farms are much better endowed with capital than those in Slovakia, Lithuania and Estonia. The value of assets per hectare diminishes as the farm size increases. The high value of assets per hectare on small farms is largely due to the considerable quantity of fixed assets. This raises doubts regarding their productivity. However, as various studies show, particularly for Poland, small and medium-sized farms are usually over-equipped. However, their capital stock, especially machinery and buildings, is largely depreciated and out-of-date. Hence, it is not sure whether these fixed assets are still used much in production or are more or less a statistical reminder. On the other hand, large farms use modern, labour saving technologies, i.e., high quality and efficient machines.

The ***income situation in agriculture*** in the new Member States is difficult to assess. Not only do farms in the smallest size group earn a small income; this holds, in general, for the average of all farms. With the exception of Estonia and the Czech Republic, farmers in all other CEECs earn less than the average worker. In some countries, the differences between these two income figures are enormous, e.g., in Latvia.

The ***future development*** of farm structure and employment in agriculture is dependent on many factors. Among them are the expected earnings in agriculture, which are influenced by agricultural policy. However, the opportunity costs of labour of those engaged in agriculture are even more important for deciding to stay in agriculture or to leave the sector. They are dependent on the availability of off-farm income opportunities, the age structure and the endowment with human capital. There is evidence in many current EU Member States that general economic development is more decisive for structural change in agriculture than the economic situation in this sector itself. This probably also holds for the new Member States.

Average ***farm gate prices*** of the main agricultural commodities in the new Member States are commonly below the EU-15 average. However, considerable deviations could be observed both with regard to commodities and countries. The country experts expect the prices of main commodities to come rather close or equal to the EU-15 average in the next few years. This may be a realistic prediction, assuming an observable upward trend in the new Member States is going to continue as a result of CAP implementation. Furthermore, improvements in product quality are to be expected, partly due to higher standards imposed by EU regulations. In addition, improvements in the food processing sector could lead to a reduction of processing and marketing costs and increased demand.

There is a common expectation that in the near future all ***yields*** will increase, not only absolutely, but also relatively to the corresponding EU-15 average. By the year 2010, after accession to the EU, yields in the new Member States will still be lower than the EU average. The yield increase predicted by the country experts depends strongly on the initial level, but most frequently it should reduce the gap between the EU-15 average and the new Member States by 5 to 15 percentage points. This scale of increase might be considered realistic, assuming that the technologies of production will improve and the inputs increase. It can be expected that due to technological advancements, yields will also increase in the current Member States. This may cause a significant gap to remain in the short-term perspective. For most countries, this was also the case during the 1990's. What was said about crop yields also holds for yields in dairy production. It should be noted that this applies to all countries except Hungary, where present milk yield exceeds the EU average, and a further increase is expected.

In general, it is expected that accession into the EU will contribute to increasing ***purchase prices*** and ***rental rates*** due to the improved profitability of agriculture. To which degree and how fast higher profitability will lead to increasing rental rates is dependent on the prevailing rental arrangements. In areas with informal, short-term leasing, rental prices could catch up faster than in those predominantly under long-term contracts.

In all countries joining the EU in 2004, positive impacts on ***farm income*** due to the implementation of the CAP are expected, although not all groups of farmers will equally benefit from accession. The income impacts in the new Member States will strongly depend on the additional support paid out of national budgets, (top-up of direct payments) which has not yet been decided on in all new Member States. Less predictable are changes in farm income levels in Bulgaria and Romania, which will not join the EU in the first round.

The ***strengths, weaknesses, opportunities, and threats with regard to agriculture*** as assessed by the country experts do result in a differentiated picture. Natural conditions for farming is evaluated as a strength in some countries (Estonia, Slovakia, Romania, Bulgaria) while in other countries as weakness (Poland, Slovenia, Czech Republic in large parts of the country). The labour force situation in agriculture is assessed as number of workers employed in this sector for the Czech Republic, Slovakia and Estonia, and evaluated positively, while in other countries the high number of small farm holdings is considered and judged to lead to the problem of hidden unemployment with low labour productivity (Poland, Latvia and Romania). Low costs of main inputs, including those of labour, are listed as strength in only three countries (Hungary, Lithuania and Poland). The fragmentation of farm structure is the most commonly-mentioned weakness. On the other hand, a high share of large farms, allowing the exploitation of economies of scale, is listed as strength of the Czech Republic, Slovakia and Hungary. In the latter two countries, however, a dual farm structure exists with a high share of small holdings. This is considered a weakness. Not surprisingly, for a number of countries, easier access to EU markets after enlargement is seen as an opportunity, and at the same time, the possibility of increased competition on domestic markets is a threat. Other opportunities most frequently-mentioned in the analyses were related mainly to improvements in technologies of agricultural production, and more widely to the dissemination of more environmentally-friendly practices and the development of organic production. This could result in increased productivity, but also improved quality of agricultural produce.

Rural economies and their developments; in particular, labour market trends and off-farm economic development

Due to the decreasing importance of agriculture, off-farm employment and income sources will become more and more decisive for the socio-economic well-being in rural areas. Therefore, after analysing farm performance as one important factor of rural development, chapter 4 focuses on rural economies in a broader sense. Besides rural living standards, factors influencing rural labour markets like demographic patterns, the endowment with human capital, employment structures and the importance of commuting are discussed. Furthermore, the potential for alternative income generation is assessed.

A major finding is that there is generally a very wide disparity between the ***incomes*** per capita of those who live in cities, especially capital cities, and those who live in rural regions. The ratio between the poorest and the richest NUTS-3 region is highest in Poland (1:5.4 in 2000) and Latvia (1:4.3). This disparity is often increasing, as positive rates of economic growth are seemingly faster in wealthier regions. Many persons who live in rural regions of the new Member States, and especially those in predominantly rural regions, are poor as judged by the level of GDP per capita relative to the standards of the EU-15, and some are getting poorer. Some are living under conditions of extreme poverty, particularly in Latvia, Romania and Bulgaria. Some regions have a very low mean GDP per capita, (the extreme case is Latgale in

Latvia with EUR PPP 2,674 in 2000) and as shown by the Romanian data, the distribution of GDP levels is highly skewed. Other measures of human welfare such as infant mortality are also unacceptably high in many CEE regions, although some poor regions have quite low rates.

Rural areas have a ***population*** density that is, in general, 41-59% below the national average. This induces both less incentives for investment as well as difficulties in providing sufficient infrastructure. Within the last decade, the whole population of the CEEC (except most Polish regions, Slovakia and Northeastern Romania) decreased, the result of low, falling birth rates, high death rates and out-migration. Internal net migration rates are on the whole low, but there is a detectable tendency for people to migrate away from peripheral regions to the capital regions. The metropolitan suburbs are especially gaining in population. However, rural areas are not always regions of out-migration. Net in-migration in rural areas is taking place, for instance, in Hungary (crude rate of net migration per 1,000 inhabitants: +1.9) and Romania (+0.9). More important than absolute number of in- or out-migrants seems to be the characteristics of these migrants. At present, a tendency of out-migration of young people of working age from rural areas can be assumed, resulting in higher age dependency ratios[15], as shown in the 44% of rural Estonia (national: 39.7; all CEECs: 32.4%). In the peripheral region Latgale in Latvia, for example, the out-migration (–1.3) and age dependency ratios (41.4%) belong to the highest of the country. High age dependency ratios stand for a relatively small size of the active population of working age and will put pressure on the public budgets from the sides of pension and health insurance, which is an increasing problem all over Europe. However, despite higher death rates and age dependency ratios in rural areas, the statement that individual farmers tend in general to be over-aged cannot be confirmed. All countries where data was provided show a considerably high proportion of the agricultural labour force under 35.

The level of ***educational attainment*** amongst the rural population is, in all new Member States, lower than the standard of the respective total populations, whereas rural-urban differences seem to be less pronounced in the Czech Republic, Hungary, Poland and Latvia. On the whole, men have slightly more formal education than women, although there are some exceptions, such as Estonia. While the net of primary institutions is normally well-developed all over the countries, most higher education institutions are concentrated in towns, so that progression will incur the costs of commuting or relocation, depending on the distances and availability of public transport. In the Czech Republic, commuting to school is already a common practice. Concentration tendencies of education facilities are also observable at the primary level in Estonia, and are expected in Bulgaria. The quality of rural education is reported to be, in general, lower than in towns due to difficulties attracting the best teachers, worse school equipment, less access to information technology, few special schools and finally, financial problems. Lifelong learning opportunities – especially courses for new developments such as IT and language training – are less available in rural areas compared with towns, although detailed data about training and adult educational provisions is scanty. In agriculture, extension services and agricultural universities, colleges and research institutes provide several training courses, but not always to a large extent.

For ensuring sufficient education for the rural population in the future focus should be put on the improvement of quality, and to render it possible that each rural child (as well as adult) can reach the desired educational institution within an acceptable distance. The latter includes commuting and provision of public transport. Finally, the opportunities of the Internet for remote areas should be extended to overcome rural-urban differences, especially given the importance of educational attainment for rural people to find and sustain employment.

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[15] The age dependency ratios is defined as the proportion of people aged 60 and over to those between 20-59.

In most countries, ***unemployment*** is consistently shown to be a more serious issue in rural areas. Long-term unemployment is a common phenomenon and unemployment amongst women and young people can be especially high. Rural unemployment would be more extensive if the underemployment found in the larger agricultural sectors in the more rural districts were recognised. Underemployment is probably a feature of small farm structure and thus does not necessarily apply to all regions. Rural employment consists, for the most part, of self-employed people and unpaid family members, whereas in urban labour markets many more people have an employee status. Precise figures on underemployment in agriculture are not available, but for Poland, the country experts estimate the rate in the different *voivoidships* at 16% to 40% of total agricultural labour input.

Rural employment patterns have been changing inexorably, with falls in both agricultural and industrial employment. Given that industrial enterprises in most rural regions, except in the case of many Romanian districts, employ many more people than agriculture, these changes in the demand for labour by industry have more significance for the rural workforce than do those in agricultural employment. The point was made by several country experts that where large industrial enterprises, e.g., in the mining sector, were closed down, the local effects are especially serious. Employment in the service sector has been growing, but mainly in urban centres, and more slowly in most rural districts. Even so, the service sector is by far the most important employer in the rural areas of most of the new Member States.

Average employment rates for men range from 73% in the Czech Republic and 71% in Romania, to only 56% in rural Latvia and 54% in Slovakia. In rural areas, these rates are generally lower than in urban areas. Employment rates for women are, in all countries, lower than those for men, typically by around 7-8 %-points. Differences in employment rates across the countries are partly caused by differences in registered unemployment rates.

The ***economic performance of regional economies*** is mostly dependent on the industrial and service sectors. Agriculture is a more important source of output in the more rural regions. Growth is most commonly associated with a fall in agricultural and industrial output and a rise in the output of services, but there are exceptions. In some regions, such as Bulgaria, agricultural output is increasing. In Hungary, industrial output is rising. The service sector tends to be based in urban areas, especially in capital regions. There is thus a highly uneven distribution of gross value added between urban and rural regions.

Wage rates vary substantially between sectors, with agriculture and trading activities often being the sectors with the lowest wage rates. Wage rates also vary between regions, typically being much higher in the capital regions and much lower in more rural locations. Wages show marked country variation, but are especially low in Romania and Bulgaria (around EUR 80 per month for agricultural workers). Women, on the whole, receive lower wages than men. Rural incomes depend heavily on social payments and on paid employment in both the urban and rural economy. For example, the country experts report that social payments are the main source of income for around one third of the rural households in Estonia, Lithuania and Poland. There are very few self-employed people outside of agriculture.

In most countries, investment in relation to the gross value added would appear to be high enough to generate future growth. But in some countries and many rural regions, this is not the case. Urban centres, and especially the capitals, attract a greater proportion of investment.

Commuting by rural people to urban-based jobs is consistently a common and growing practice. Up to half of the rural workforce may be involved in this type of employment. Young, male workers are more likely to commute to work, whereas females are more constrained by family responsibilities. The most often-mentioned sectors where commuters are employed are construction and transport. Commuting to work by rural people has been an established practice for a long time, but has adapted during the transition to a market economy in response to

structural changes in both industry and agriculture. There is some evidence provided for different types of rural commuters, including those who choose to live in the countryside and work in towns as a preferred lifestyle as opposed to the more common person who cannot get a job near where he lives.

To create ***alternative income sources*** in rural areas, most country experts have positive expectations, especially in tourism, followed by manufacturing, specialist food and drink and subsequently information technology (IT). Further sectors where growth is expected to be based included investment activities in infrastructure in Poland, energy in the case of Estonia, landscape and environmental management in the case of the Czech Republic and trade in the case of Hungary and Slovakia. Conditions for growth that were mentioned included infrastructure, the importance of natural conditions such as coasts and mountains for tourism, the proximity of neighbouring countries for trading opportunities, an industrial base, effective institutions and communications. In many countries, the presently most prosperous regions are considered to have the best prospects.

A critical review seems to be necessary concerning the almost universally-positive assessments of the importance of (agro-)tourism. For most of the regions, the contribution of tourism will probably only be of minor importance, since the tourism market is a global, highly-competitive market. In addition, the development of the necessary basic infrastructure and institutions to support tourism is hampered by a lack of capital. It is likely that only in certain areas with favourable conditions can tourism play an important role. The same situation and problems can be expected for other sectors, especially IT.

A specific condition for growth as measured by the rate of business start-ups is entrepreneurship. Start-ups occur less frequently on the whole in rural and poorer regions. This may be explained by a lack of entrepreneurs, in combination with poor business conditions. Where information on business start-ups is reported, it would seem that the number of such businesses per capita of population, and their small size, are insufficient for creating significant growth.

The analysis included a systematic investigation of the ***strengths, weaknesses, opportunities, and threats of rural areas***. The five strengths which are most often mentioned are a relatively good infrastructure, existing natural resources with their recreational potential, experiences in off-farm business, skilled labour and the high availability of a work force. Some of these strengths are also stated as weaknesses, e.g., poor infrastructure and poor qualifications and management skills. What at first sounds contradictory simply means that the conditions of rural areas should not be generalised, but differentiated according to different classes of population or situations. For Poland, e.g., the differences in qualification are mainly seen as differences between educated, employed persons and unemployed people with low skills. EU accession is seen as an opportunity with respect to available structural funds and development programs, market access and an expected increase of FDI after accession. Hopes are also connected with the improvement of education and vocational training and rural infrastructure, including (tele-)communication networks. Threats are relatively heterogeneous across the different countries. Stated by more than one country are the ageing of the population and migration, which may prove to be a vicious circle, the low absorption of structural funds because of problems in mobilizing own financial resources, the lack of required reforms, the further decline in traditional agriculture and industry and finally, the further marginalisation of remote areas and growing disparities.

Rural infrastructure and services

As stated above, public infrastructure is one of the key factors behind economic development in rural areas, possibly as strength, but also as a weakness and hampering factor. Rural infrastructure incorporates the physical, social, financial and market infrastructure, which is exam-

ined in chapter 5. Most of the rural infrastructure in CEECs was built under central planning. During transition, due to the harder budget constraints at all levels, the maintenance of physical infrastructure has deteriorated and little has been done to improve the social infrastructure. However, the constraints are not only budgetary. The low and decreasing density of population in some rural areas, the out-migration of young people and the need to improve the quality of social services through concentration have made some rural areas worse off. The market infrastructure has developed in most of the CEECs, but it needs both growth and quality improvement. This is particularly the case of the agricultural advisory system, which must be able to provide complex advice to farm households; furthermore, these farm households must be treated as businesses, not merely as agricultural producers. In general, a great deal of additional public investments is required for upgrading rural infrastructure. EU accession is the opportunity most often mentioned by the country experts, since it offers support through the various structural funds, especially through SAPARD. Participating in these programmes necessitates rural development planning, which some of the experts view as an opportunity. Improved public infrastructure could pave the way for the establishment of complementary private services, which are to help relax rural unemployment.

Developments in the agri-food sector with special emphasis on quality and sanitary issues and resulting effects on rural areas

Chapter 6 investigates developments in the agri-food sector and its impact on rural areas. Special emphasis is put on the ***implementation of*** quality and sanitary ***standards*** as part of the *acquis communautaire*. Since these standards are of particular importance in the dairy and meat sector, these branches are at the centre of the analysis. Food safety is an integral part of the EU policy on consumer protection and health. Standards, e.g., for hygiene and control, food additives and food labeling, serve to achieve a high level of food safety in the European Union. Thus, for the new Member States, compliance with the Union's *acquis communautaire* on food safety is essential. This is a significant challenge where progress has been made, but further steps still have to be accomplished. According to the country experts, health rules of the production and processing of dairy products have been fully adjusted to EU regulation or are envisaged to be in force in 2004 in all 8 countries acceding into the EU in 2004. Problems in this respect seem to be at this point most pronounced in Poland. In this country as well as in Bulgaria and Romania, national legislation is so far only partly in compliance with EU regulations. The situation is quite similar with respect to the meat sector. However, while most new Member States have been quite successful in the transposition of legislation in the different areas, full implementation and enforcement of the *acquis communautaire* still needs to be accelerated and strengthened. Enforcement problems are due to, e.g., a shortage of well-trained and qualified staff, an ineffective monitoring and/or penalty systems or unclear divisions of authority and competences. Furthermore, the huge investments necessary to adapt to EU standards cause severe problems.

The quality of dairy products crucially depends on the quality of the raw milk processed, which has improved over the last few years. However, in some countries, still a considerable share of the milk delivered to the dairy plants does not fulfill EU standards, e.g., 36% in Latvia (2002) and 30% in Poland. Improvements are hampered by the small average herd sizes found particularly in Latvia, Lithuania, Poland, Slovenia, Romania and Bulgaria. This also leads to high milk collecting costs, which reduces the ***competitiveness*** of the dairy sector, in addition to considerable over-capacities and the small size of most of the dairy plants. A continuation of the concentration process is necessary to improve the economic performance in the dairy sector and will be fostered by EU accession. The problems in the meat sector are similar to those in the dairy sector. It is likely that in both branches a considerable share of enterprises will have to close down because they are not able to fulfill EU standards and/or withstand EU competition.

The developments in the food processing sector are of great relevance for agriculture and, thus, impacting on rural areas. In the medium- to longer-term, the closure of food processing enterprises is likely to induce a rise in the competitiveness of the food industry and, thus, would enhance the development of a competitive agri-food sector. Since only little information is available on the ***regional distribution*** of the food processors, the direct effects on rural areas are difficult to assess. Based on the expert information, in Lithuania, Romania and Slovenia most of the processing enterprises are located in urban areas. The same also holds to a less extent for Estonia and Latvia. In contrast, in Slovakia, processing enterprises are mainly found in rural areas. Even if most enterprises are located in urban areas, if those in rural regions are the ones primarily forced to close down (e.g., because those enterprises in rural areas are generally of smaller size and/or cannot acquire the necessary funds to adjust to the *acquis communautaire*) the consequences still might be problematic for the rural economies of the respective countries.

The country experts assessed the ***strengths, weaknesses, opportunities, and threats*** of the dairy and meat industry. As strengths, a rise in competitiveness due to lower costs in production and processing, the large amount of foreign investment, but also the implementation of the *acquis* are mentioned. The latter opens up the possibility to export high quality products to the EU. Hygienic standards are, at the same time, seen as a weakness for almost the same country group (Latvia, Poland, Slovenia, Romania, and Bulgaria), since it requires huge investments. As far as the *acquis* has been implemented it has strengthened the position of the respective enterprises in the countries. However, there are still many enterprises that are behind following these hygienic standards and this, indeed, can be regarded as a weakness. The aspect of "adoption of EU-standards" is also mentioned as an opportunity by the country experts of Latvia, the Czech Republic, Slovakia and Slovenia since they induce higher quality of the dairy products. On the other hand, these standards are regarded as a threat by the Latvian, Estonian and Slovenian experts since the implementation of those standards leads not only to an improvement of the quality but also to higher production and processing costs. In countries where farm structure is especially strongly fragmented (Latvia, Poland and Slovenia) a trend towards concentration of production is regarded as an opportunity. For some countries, accession into the enlarged EU market provides an opportunity to increase exports. EU enlargement also offers the chance of entering new markets for highly processed and organic products.

Agri-environmental policies and the impact of agriculture and agricultural policy on the rural environment

Rural areas are often associated with high environmental values. Chapter 7 examines the impact of agriculture on the environment in general and sheds some light on specific agri-environmental policies such as the Nitrate Directive or public support for organic farming.

During the socialist era, agri-environmental issues were typically not a political priority. During the initial years of transition, agri-environmental issues received even less attention as the intensity of production fell. The latter was unfortunate, as reducing agri-environmental assessments to debates over intensification is inadequate. Low-input farming still requires careful management and monitoring, especially in sensitive ecosystems. Furthermore, land abandonment and under-grazing are creating new environmental pressures. Semi-natural grassland, which is highly valuable with respect to biodiversity, depends for its maintenance on appropriate management by farmers through mowing or grazing. Therefore, it is particularly sensitive to abandonment (or intensification). Compared with most of the current EU Member States, the proportion of semi-natural grassland in the new Member States is high.

The late 1990s saw the introduction of a raft of new environmental laws or revisions to existing regulations. These developments were largely stimulated by a need to adopt the *acquis*

communautaire rather than domestic pressures. While legal harmonisation has progressed, the ability to enforce and monitor new regulations has often lagged behind. In states where restitution policies have been implemented, the 1990s witnessed a large increase in the number of holdings, creating an extremely diverse set of actors with contrasting farm sizes, degrees of specialisation and levels of education. This represents a major challenge to both extension and enforcement agencies. Local capacity-building remains a major challenge.

In particular, the adoption of the Nitrate Directive has been controversial and many of the problems that were reported in current Member States are being replicated in the CEECs. With regard to nature protection, the new Member States have a large proportion of their agricultural land designated as protected. Many of these designated areas have their origins in the socialist era, when they were regulated largely by 'command and punish' measures. Unfortunately, the delay in the implementation of envisaged agri-environmental measures under SAPARD has inhibited the growth of practical experience in administering new policy tools.

The areas devoted to organic farming have grown throughout the region, albeit from a very small base. The degree of support for conversion varies significantly between the CEECs. Some new Member States, such as Slovenia, have recognised that second pillar measures will be of vital importance to the survival of their agriculture; greater domestic support and a long history of capacity building in this area has reinforced this.

For Poland, the country experts emphasise that the Polish environmental legislation is already fully harmonised with that of the EU, corresponding with international treaties and agreements ratified by Poland. However, it is stated that implementation lags behind the requirements and expectations mainly due to insufficient national funding. Country experts expect that after the accession to the EU, additional funding provided by rural development programs, the sector operational program and structural funds will lead to significant progress in implementing existing environmental legislation. Most likely, these findings for Poland also hold for other new Member States.

Policy instruments

Beyond agri-environmental policies, chapter 8 gives an overview of other policies applied in the new Member States to support rural areas and to solve the problems addressed in the preceding chapters. Evidence is provided that a general ***convergence of agricultural policy*** instruments in the CEECs towards those of the EU has taken place. This is shown in the overall level of support as measured by the producer support estimates (PSEs), and by the decline in the proportion of that support given through market price instruments. Most of the agricultural policy instruments applied in the EU have also been implemented in the new Member States. However, the adaptation of the policy instruments towards CAP-like measures had been taken on an ad hoc basis and had not been implemented systematically. Rapid changes in the use of policy instruments and the level of support for different commodities led to high policy and market risks for farmers. As a consequence, the increase in total level of support, and notably that of market price support, has not led to the expected increase of production in most of the new Member States. Apart from high policy and market risks, the lack of institutions in rural areas in the new Member States heavily contributed to the slow pace in agricultural recovery and the limited success of agricultural credit programmes.

However, besides the classical CAP-like policies, the new Member States apply a wide variety of ***additional measures*** to support their rural agricultural sectors and rural economies. It is obvious that most funds are aimed at improving farm businesses. In particular, support for investments in farm businesses takes a lion's share of total budgetary outlay in this area in order to overcome the lack of capital as a bottleneck for the further modernisation of agriculture. All governments in the CEECs have granted their farmers credit guarantees and/or interest rate subsidies to improve their access to loans. Aids for young farmers are granted in all

CEECs except for Estonia, Latvia and Slovenia, where such schemes are envisaged to be introduced after EU accession. Such measures are aimed at stimulating, even speeding up, generational change in the countryside and improving access to credit resources for farm establishment, extension and modernisation. In some countries such as Poland, these measures are evaluated to have been extremely successful; experts from other countries criticise, however, that the financial means devoted to these measures have by far been too small to have any fundamental effect.

Support for agricultural management services and agricultural advisory services is an important measure for improving human capital. All CEECs except for the Czech Republic have implemented such services, mostly co-financed by the state and linked to research institutes. Especially in countries dominated by small farms, the advisory services are highly valued, since here the managerial skills of the farmers are at present still relatively poor. As the country experts point out, in several countries, the level of usage of these services is still very low, although as in the case of Slovakia expanding rather rapidly. Some experts also criticise that at present, the advisory services are too focused towards technical issues and are less-oriented towards economic and policy advice. Finally, existing extension services do not yet provide the expected quality of advice, with insufficient capabilities and capacities for providing market-oriented business advice being observable.

Some of the policies are financed by the SAPARD funds and will help the new Member States to implement the regulations of the *acquis communautaire*. Measures to support agricultural and rural economies were assessed by the country experts with respect to their relevance in the CEECs. Almost all experts regard measures supporting the compliance with community standards as most relevant. Also, support for the marketing of quality agricultural products, for marketing and processing in general, for young farmers as well as for investments in agricultural holdings, are considered to be of very high importance in most countries. However, not in all cases is the relevance reflected in the financial means devoted to the respective area.

Typology of rural areas

The design of policies aiming to improve the socio-economic situation in rural areas, thereby reducing interregional disparities, requires identifying specific types of regions and their peculiarities, since rural areas cannot be considered as being homogeneous. Thus, finally, chapter 9 concentrates on regional differentiation and provides a typology of regions according to demographic and socio-economic criteria. The cluster analysis on the NUTS-3 level revealed ***five different types of regions*** as the most adequate result: three are largely rural (cluster A: Agrarian lowest income regions with a very high unemployment rate; cluster B: Agrarian low income regions; cluster C: Average developed middle income regions with a high unemployment rate), one includes both rural, and especially industrialised urban areas (cluster D: More industrialized middle income regions) and one covers only large cities (cluster E: Capital regions and other large cities with high income). The analysis of NUTS-2 level draws a rather rough picture in comparison to the NUTS-3 analysis, because the regional units are larger and more heterogeneous. To provide insight on the similarities of, and differences between rural areas in all of Europe, an additional cluster analysis on NUTS-2 level, including the EU Member States alongside the CEEC was carried out. The result of the last cluster analysis reveals large differences in development between the regions of the European Union and the CEECs. Two of the nine clusters cover only CEE regions, another two only EU-15 regions. Of the remaining five, four are dominated by current EU regions and only one cluster is rather mixed.

The results confirm that rural areas cannot be considered homogeneous and that general statements like "over-aged population" are not appropriate. Clues for the elaboration of rural

development measures are provided. For example, educational measures should be adapted to the age structure of regions and the necessary structural change should be particularly supported in still strong agrarian regions. However, in order to design concrete policy measures adapted to the peculiarities of the specific regions, more detailed cluster analyses – on a more disaggregated regional level including additional variables – proved to be necessary. Furthermore, it will be an important task of future research to evaluate rural development measures in the CEECs and to investigate their impacts on different regional types.

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