

CHAPTER 2
SITUATION AND PERSPECTIVE

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SECTION 2.1 SITUATION

2.1.1. *Importance of rural areas*

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In the EU-27 rural areas (predominantly rural and intermediate regions) represent 91% of the territory and 56% of the population. The corresponding shares for predominantly rural areas are 53% of the territory and 19% of the population. Rural areas are therefore particularly important in terms of territory. Among the Member States, the importance of rural areas varies from the more "Urban"¹ ones (BE, NL, MT) to the more "Rural"² ones (IE, FI, SI) along a continuum where Intermediate Regions can play a major role (BG, CZ, EE, CY, LT, LU, SK)³.

Even if economic activity tends to be concentrated in more urban areas, rural areas generate 43% of the Gross Value Added (GVA) in EU-27 and provide 55% of the employment, these shares being larger in the new Member States.

2.1.2. *Socio-economic situation in rural areas*

(tables & maps/graphs 3.2.1 to 3.2.8)

In most rural areas, a first characteristic is the low level of concentration of the population: at EU-27 level, population density varies from 40 inhabitants/km² in predominantly rural areas to 558 inhabitants/km² in predominantly urban areas. This range is of course even larger when looking at national or regional levels: at NUTS-3 level, it ranges from 2 inhabitants/km² in French "Guyane" and Finnish "Lappi" to 20 411 inhabitants/km² in Paris. In most Member States, population density did not evolved significantly in rural areas between 1995 and 2004. On the contrary, important changes occurred in the urban areas of some Member States such as increases of more than 100 inhabitants/km² in Ireland and Poland and decreases of more than 100 inhabitants/km² in Latvia, Hungary and Romania⁴.

At EU-27 level, the age structure of the population does not vary significantly between different types of areas, even if the proportion of old people (65 years old and more) is often slightly higher in predominantly rural areas. It seems that age structure is more influenced by differences in demography between MS. For instance, in rural areas, there is generally a larger proportion of old people in EU-15 whereas there are relatively more young people (less than 15 years old) in the New MS. In the New MS, the share of population between 15 and 64 years old is also significantly higher in urban areas.

At EU-27 level, the income per habitant is 25% to 30% lower in rural areas and generally increases with a higher urban character⁵. In the New MS where the general level of income is about half of the EU-27 average, the gap between predominantly rural areas and predominantly urban areas is accentuated. Moreover, whereas the relative income per inhabitant in rural areas of the EU⁶ remained globally unchanged between "1996"

¹ With more than half of the territory and of the population in Predominantly Urban regions.

² With more than half of the territory and of the population in Predominantly Rural regions.

³ In addition to the change in OECD methodology, since the CMEF and the 2006 RD report, statistical information on population density of better quality became available for many Member States (version dated 13.10.2006 in SIRE database of Eurostat). It has significant impact on the rural typology in some Member States, notably Bulgaria, Lithuania and Slovenia.

⁴ These changes are of course strongly influenced by the delineation of NUTS-3 that may be restricted to urban centres.

⁵ With the noticeable exception of Estonia. This result is influenced by the statistical measurement as the GDP is evaluated in the place of work and not in the place of residence.

⁶ EU-27 excluding MT and RO, due to the lack of data for the period 1995-1997.

and "2003", it has particularly deteriorated in rural areas of New MS (the relative position falling from 63% to 50% of the EU average).

The primary sector still represents 13% of the employment and 5% of the value added in rural areas of EU-27. This situation is more marked in the New MS, with the corresponding shares standing at 20% and 7% respectively. In general, even in rural areas, the majority of the economic activity depends more and more on the service sector. This trend should increase in the coming years as, between 2000 and 2004, the relative importance of the primary sector in the economy of the rural areas in EU-27⁷ decreased by 0.3 percentage points in terms of employment and by 1.3 percentage points in terms of value added.

The employment rate is slightly lower in rural areas for EU-27 as a whole (61% against 63% for all areas in 2005) and has developed at approximately the same rate as in other areas over the last years (+1 percentage point between 2000 and 2005). However, this is not a systematic feature at MS level⁸. At EU-27 level, the unemployment rate (including long-term unemployment) is globally slightly higher in rural areas, but as for the employment rate, this is not observed in all Member States. For EU-27, between 2000 and 2005, the unemployment rate diminished slightly in rural areas, whereas it increased slightly in urban areas.

2.1.3. Sectoral economic indicators

(tables & maps/graphs 3.3.1 to 3.3.2)

With around 14 mio persons employed in 2004 in EU-27, the primary sector represented an important part of the EU economy in terms of employment: 6.4% for EU-27, ranging from less than 1% in United-Kingdom to 33% in Romania).

In terms of value-added, the EU-27 primary sector (agriculture, hunting and forestry) reached around 200 bio euros in 2004 and accounted for 2% of GDP, ranging from 0.5% in Luxemburg to 14% in Romania.

The importance of primary sector in EU-27 is declining. Between 2000 and 2004, its share diminished by 1.4 percentage points in terms of employment and by 0.2 percentage points in terms of value-added. The number of jobs decreased by 2.7 mio persons or -4.5% per year, ranging from -10.7% in Poland to 2.7% in Malta. However, the value-added increased by 11.8 bio euros corresponding to an increase in volume (at constant prices) of 1.45% per year, ranging from -5.8% in Luxemburg to +12.7% in Hungary.

2.1.3.1. Agriculture

(tables & maps/graphs 3.3.3 to 3.3.9)

In 2005, agriculture utilised 172 mio ha in EU-27 of which 61% were dedicated to arable crops, 33% to permanent pastures and 6% to permanent crops. As the distribution depends mainly on natural conditions, there are major variations between (and generally within) Member States. Typical examples are the importance of permanent crops (vineyards, olive trees) in dry areas of Mediterranean countries (e.g. EL, CY, IT, PT, ES) or the major share of permanent pastures in mountain or rainy areas (e.g. IE, UK, SI, AT, LU, NL).

There were 14.5 mio farms in EU-27 in 2005, with an average size of 12 hectares, varying from 1 hectare in Malta to 84 hectares in Czech Republic. In general, farm sizes

⁷ Due to data availability it refers to EU-27 excluding Greece.

⁸ Due to data availability, this indicator and the following one related to long term unemployment (and unemployment rate in some cases) are evaluated at NUTS-2 level which only enables to provide a rough delineation of rural areas.

are higher than the average in EU-15 (with the exception of EL, IT and PT) and lower in the New Member States (with the exception of CZ, EE and SK).

Variations in structure among regions of the same MS are in general much lower in New MS (with the exception of CZ and HU) than in old ones, with the largest differences observed in Germany (from 13 ha in Hamburg to 266 ha in Dessau).

Variations between Member States and regions are even greater when measuring the economic size⁹ of farms: on average, the economic size of farms in the New Member States is ten times lower than in EU-15 (the Czech Republic is the only New Member State above the EU-27 average economic size that stands at 10.5 Economic Size Units)¹⁰.

The total labour force in agriculture represents around 12.7 mio annual work units for EU-27.

The basic feature of agriculture in the EU is family farming with 1 to 1.5 full-time jobs, though there are significant variations between Member States. In southern countries of EU-15 and in most New Member States, there are many holdings with less than 1 full-time job (the minimum being 0.4 in Malta). On the other extreme, in some regions, agriculture production is based on very large agricultural holdings organised in legal entities and mainly based on non-family labour force. It is clearly the case in the Czech Republic but also in Eastern Germany, in French "Ile de France" and in Dutch "Holland", for instance.

Very small farms that could be considered as based on semi-subsistence activities are very important in some Member States, particularly in the New Member States. In several of these, half of the farms have a potential gross value added per year of less than 1 200 euros (i.e. with an economic size of less than 1 European Size Unit)¹¹.

This is confirmed by the information available on the importance of production self-consumed by the family members. In 2007, there were around 6.4 mio holdings (44% of EU-27) in which more than 50% of the production was self-consumed. These farms covered 12 mio hectares (23% of EU-27) and used 3.8 mio annual work units (52% of EU-27). Around half of this phenomenon takes place in Romania, but is also predominant in the agricultural sector of Bulgaria, Estonia, Latvia, Hungary, Slovenia and Slovakia, and is also significant in the other New Member States.

In 2005, only 20% of farmers in the EU-27 had a basic or full training in agriculture, ranging from less than 1% in Malta to 71% in The Netherlands.

At EU-27 level there is approximately 1 farmer of less than 35 years old for each 8 farmers of more than 55 years. In some Member States (Portugal, Italy, United-Kingdom), the proportion of "young" farmers is very low (less than 1 "young" farmer for every 20 "older" farmers) whereas in some others (Poland, Germany, Austria) there is more than 1 "young" farmer for every 3 "older" farmers.

The labour productivity of farming¹² differs considerably across the EU, particularly between the old and the New Member States. On average, for the period 2003-2005, labour productivity in the EU-15 was around 90% higher than the EU-27 level, whereas

⁹ The economic size is measured by the potential gross value added which takes into account the type of production and the average yields and prices at regional level (European Size Unit).

¹⁰ It should be noticed that the economic size is measured in euros. Variations would be attenuated when using another currency unit such as the purchasing power parities which take into account the cost of living.

¹¹ This information should be used with cautious as it is very sensitive to the definition of a farm and to the threshold of the survey adopted by the Member States. It explains the high proportion of very small farms recorded in UK in the Farm Structure Surveys since 2003 for which the national authorities decided to cover all farms left outside the field of observation in the previous surveys.

¹² Measured by the Gross Value Added at basic prices per Annual Work Unit.

it was five times lower in the New Member States. Exceptions are Malta and Cyprus with labour productivity above EU average. The highest labour productivity is observed in Denmark and The Netherlands (more than 3 times the EU-27 average) and the lowest in Latvia, Bulgaria and Poland (less than 5 times the EU-27 average). However, over the last years (between 1999-2001 and 2003-2005), labour productivity increased more rapidly in the New Member States than in EU-15. Average annual change rate¹³ in the New Member States varies between 5.5% and 17.7% and in the Old Member States between - 3.6% and 9.3%.

Gross Fixed Capital Formation in the EU-27 reached 47 bio euros in 2004, of which 93% took place in the EU-15. The rate of investment, measured by the ratio between the Gross Fixed Capital Formation and the Gross Value Added, was on average close to 28% for the EU-27 but was half in the New Member States than in EU-15 (16% and 30% respectively). In EU-15, it varied between 12% in Spain and 83% in Luxembourg. Among the New Member States, high rates (at least 40%) are observed in the Baltic States and in Slovenia.

2.1.3.2. Food industry

(tables & maps/graphs 3.3.10 to 3.3.13)

The food industry represents an important part of the EU economy accounting for 5.1 mio jobs (2.4% of total employment) and 2.2% of GDP for EU-27 in 2004. It is relatively particularly important in Poland, Ireland, the Czech Republic, Lithuania, Estonia and Hungary. Between 2000 and 2004, this sector developed differently in the various Member States resulting in a stable employment and a slight increase of gross value added (at constant prices) at EU-27 level.

In 2004, the rate of investment, measured by the ratio between Gross Fixed Capital Formation and Gross Value Added, was particularly high in Slovakia, Latvia, Lithuania, Poland and Slovenia (>30%).

Labour productivity is difficult to measure in the food industry as there is limited information concerning the labour force, due to the importance of seasonal or part-time employment in this sector. The estimate for EU-27 is around 40 thousands euros per person employed.

2.1.3.3. Forestry

(tables & maps/graphs 3.3.14 to 3.3.17)

In the EU-27 the forest available for wood supply covers around 126 mio ha. Whereas it represents 73% of the total forest area for EU-27, the share of productive forest is much lower in Mediterranean countries. Around 60% of this forest belongs to private owners, this part being in general lower in the new Member States. In most Member States, the average size of the forest owned by private owners is low (for instance lower than the average farm size). Forest productivity varies significantly among Member States, from 1 m³/year/ha in Cyprus to 8.8 in Germany (4.9 for EU-27). Due to the relatively low importance of the forestry sector, the economic information is very limited in many Member States.

Based on the available information, estimates for Gross Fixed Capital Formation in the EU forestry sector reached around 1.9 bio euros per year in 2004, i.e. around 21% of the GVA of the sector.

Due to the same difficulty to that of the food industry, labour productivity is difficult to measure in the forestry sector. The estimate for the EU is around 34 thousands euros per person employed in 2004.

¹³ Measurement at constant prices (in volume).

2.1.4. Environment

(tables & maps/graphs 3.4.1 to 3.4.20)

Agriculture and forestry represent 78% of land use in the EU-25, ranging from 50% in Malta to 95% in Poland. In the Mediterranean countries, the British Islands and Scandinavia, natural areas also cover a large part of the territory. Artificial areas represent a significant part of the territory only in Malta, Belgium and The Netherlands. Agriculture and forestry therefore play a major role for the environment and landscapes in Europe.

A considerable part of the agriculture area is located in regions where conditions are difficult for this activity, for instance in mountains. Extensive farming covers at least 8.5% of area for arable crops and 21% of area for grazing animals in EU-27. It is estimated that high nature value farming systems cover more than 10% of agricultural area in most Member States (even more than 30% in some of them¹⁴).

The implementation of Natura 2000 has represented a significant contribution to the preservation of the biodiversity. The designated sites cover over 10% of agricultural area of the EU-25 and even 20% or more in five Member States.

Natura 2000 sites also cover 7% of forestry area that also contributes to the biodiversity, particularly in mixed broadleaved-coniferous forest (around 14% of forest and other wooded land in EU-27). Taking into account other programmes to protect forestry, around 17% of EU-27 forestry area is covered by environment protection schemes. This share even reaches 63% in Germany.

However, a decline in the population of farmland birds, largely attributed to intensive farming, is observed in many Member States even if, over the last decade, the situation is rather stable at EU level¹⁵.

Defoliation of trees also reveals the strong environmental pressure on the forestry ecosystem (23% of sample trees at EU-27 level in 2006). The development of this phenomenon between 2000 and 2006 varies among Member States, with significant increases in Portugal, France, Luxemburg and Cyprus and steep decreases in Romania, Poland and Bulgaria. In 2006, it was particularly important in the Czech Republic, Luxemburg, Bulgaria and France. However forestry area in EU-27 increased by nearly 500 000 hectares per year between 2000 and 2005, the largest increases having taken place in Spain and Italy.

Even if several human activities influence water quality, agriculture plays an important role for some of its features. Concentration of nitrates in surface water decreased over the last years in most Member States even if significant surpluses of nutrients (+89 kg/ha for Nitrogen and +13 kg/ha for Phosphorus at EU-15 level and much more in some Member States) reveal that farming practices are still too intensive. The pressure from agriculture on water use is also critical in some regions of the European Union as, for instance, the share of irrigated area can be higher than a fifth of the agricultural area in some Member States.

Soil erosion persists in many areas as it is estimated that a soil loss by running water can amount to more than 2 tons/ha/year. However, an increasing part of agricultural area is devoted to organic production. For the whole EU-27, organic area was higher than 6.2 mio ha in 2005, i.e. 3.6% of the agricultural area, and is developing rapidly: for

¹⁴ The concept of High Nature Value Farmland is still under development. The current methodology is not fully satisfactory in some Member States (e.g. Finland) which therefore often prefer to use national definitions.

¹⁵ Attention should be given to long-term trends as short-term variations are mainly influenced by weather conditions.

the period 2000-2004, the average annual growth rate was higher than 9% for EU-27 and even reached 22% for the New Member states.

With 477 mio t of CO₂ equivalents, agriculture produced 9.2% of the EU emissions of greenhouse gases in 2004, resulting from an average annual decrease of 0.61% per year between 2000 and 2004. However, with a production of renewable resources of 3.4 mio t of oil equivalent in 2005 and an area in 2005 estimated between 2.6 and 2.8 mio ha), EU agriculture also contributes increasingly to the mitigation of climate change¹⁶.

2.1.5. Diversification and quality of life in rural areas

(tables & maps/graphs 3.5.1 to 3.5.12)

The diversification of the economy of rural areas to other sectors than agriculture is progressing:

- 36% of European farmers had another gainful activity than agriculture in 2005, this percentage being even higher than 50% in many countries and regions (particularly in Slovenia, Sweden, Cyprus, Malta, Denmark and Germany);
- 86% of employment and 95% of value added in predominantly rural areas of EU-27 came from the non-agricultural sectors, resulting from respective average annual increases of around 0.9% and 2.2% per year between 2000 and 2004.

One of the key opportunities in terms of potential growth for rural areas comes from tourism. With nearly three quarters of bed places in EU-27 in rural areas, this sector already plays a major role in most of them.

Due to their rural amenities, rural areas are attractive as a place to live, even if remoteness and peripherality remain a major problem in some of them. However, some aspects of quality of life need to be improved in many rural areas. For instance, broadband internet infrastructure and take-up by population are significantly lower than in urban areas.

The development of services is also lower (and is developing slowly) in the rural areas of many Member States: at EU-27 level, services represent 63% of the economic activity in predominantly rural areas in comparison with 75% in predominantly urban areas.

The net migration rate is a good indicator to measure the global attractiveness of an area. It is often lower in predominantly rural areas (+3.1 % for EU-27 in 2004) than in predominantly urban areas (+4.3 % for EU-27 in 2004). It should be noticed that the pattern varies significantly in the different Member States and that this information should obviously be analysed with care as other factors, such as more favourable climatic conditions, can play a major role in the decision of people to go and live in another place.

Human potential is a key factor for the development of rural areas. In the EU-27, 71% of adults have reached a medium or high education level. There are however large variations among Member States (from 25% to 90%). In most of the countries the level of education is lower in rural areas than in urban areas, even if in several cases, it improved more rapidly in rural areas over the last years.

Life-long learning is a good instrument to improve the skills of workers and favour economic development. It is already largely applied in Scandinavian countries and the United Kingdom where more than 20% of adults participated in life-long training in 2005. However, it is often less used, and progressing slowly in rural areas.

¹⁶ Even if this quantity may seem limited in comparison with the 62 mio t of oil equivalent produced by forestry in 2005, with an average annual increase of 3.6% per year between 2000 and 2005.

The dynamism of population and their willingness to be actors for their development is also essential. LEADER actions cover 14% of the EU-15 population and more than 20% in some Member States (such as Ireland, Portugal, Luxemburg, Austria, Greece and Finland).

2.1.6. Implementation of Rural Development Policy 2000-2006

2.1.6.1. Monitoring of measures financed by the Guarantee section of EAGGF for EU-25

(tables 4.1.1.1 to 4.1.1.29)

Council regulation 1257/1999 proposes a menu of 22 measures that can be implemented by Member States in their Rural Development Programs. The only compulsory measure concerns the agri-environment. Some measures may be proposed by Member States but are not implemented or at least not from the beginning of the programming period.

In 2005, the only measure proposed by all Member States (except the compulsory one concerning agri-environment) was the support in "Less-Favoured Areas". Other measures largely implemented were "Afforestation", "Training", "Other forestry measures", "Investments in agricultural holdings", "Early retirement", "Improving processing and marketing of agricultural products" and "Diversification of agricultural activities". The less successful measures were "Financial engineering" and "Restoring of agricultural potential".

Whereas some Member States (Germany, Italy, Cyprus and Spain) propose more or less the full menu and some Member States only very few of them (Malta, Portugal and Greece)¹⁷, most of Member States have selected at least 2/3 of all the measures¹⁸.

Rural Development is a policy co-financed by EU and the Member States. In 2005, the share of national contributions to the total public expenditures reached 49%. National contribution varied from 20% in most New Member States to more than 70% in Luxemburg.

In 2005, 170 000 contracts concerned measures for structural actions and improvement of the competitiveness of agricultural sector, mainly for investments in agricultural holdings and early retirement schemes. The average amounts of individual contracts varied largely between measures and between Member States. The highest amounts of total public expenditure (several hundreds of thousands of euros) were related to non individual measures such as restoring agricultural production, water management, restoring of agricultural potential and preventing for natural damages, financial engineering and transformation and marketing of agricultural products. For other measures like investment in agricultural holdings, training and early retirement schemes, individual amounts were generally no more than several thousands of euros.

The measures aiming to improve the environment through land management were implemented through more than 3.1 mio contracts in 2005. The most popular are "agri-environment" (nearly 1.9 mio) and "less-favoured areas" (nearly 1.3 mio). The average amounts of total public expenditure are limited to a few hundreds or thousands euros. Around 38.7 mio ha are benefiting from LFA support. It may appear limited as compared to an estimate of 90.7 mio ha potentially eligible. The total arable crops area covered by

¹⁷ Greece and Portugal may have implemented other measures in the Objective 1 program under EAGGF Guarantee.

¹⁸ It should be taken into account that 5 measures ("Management of integrated RD strategies by local partners", "Implementing demanding standards", "Use of farm advisory services", "Participation in food quality schemes" and "Promotion of quality products") have been introduced in the framework of the 2003 CAP reform.

agri-environment schemes reached 36.5 mio ha in 2005 for EU-27 (excluding Hungary and Malta). It is the "supported" area meaning that the same hectare is counted as many times as it benefits from different agri-environment schemes. It reveals a high success as the corresponding total arable area was around 89.6 mio ha.

The measures specifically dedicated to improve the local rural economy and quality of life were implemented through around 23 000 contracts, of which only 3 500 for the diversification of agricultural activities as most of the contracts were committed in the previous years. Average amounts are often much higher for common actions such as village renovation and provision of basic services and also for the development of tourism and handicraft activities. It should be noticed that these actions seems more targeted and of higher amounts in The Netherlands.

2.1.6.2. Monitoring of measures financed by SAPARD

(tables 4.1.2.1 to 4.1.2.12)

For the period covered by this report SAPARD was only covering Bulgaria and Romania. SAPARD proposes 12 measures (plus a 13th measure on water resources management introduced recently). Over the period 2000-2006, more than 6 700 projects have been introduced, of which 38% in Bulgaria and 62% in Romania.

Out of the 13 measures available in 2000-2006, Bulgaria and Romania selected 10 measures. None of them included "Land improvement and reparacling" and "Agricultural water resources management" in their programs. Also, only Bulgaria proposed "Renovation of villages" and only Romania proposed "Structures for quality, veterinary controls, foodstuffs, etc".

All other measures are implemented in both Member States.

Around half of the projects concern the investment in agricultural holdings, the 3 other most successful measures being the diversification of activities, the support to rural infrastructure (mainly in Romania) and processing and marketing of agricultural & fishery products.

The average amount of EU contribution¹⁹ foreseen for a project is around 209 000 euros, with much higher level for the support for the structures for quality and veterinary controls (nearly 1.5 mio euros).

2.1.6.3. Overview of Rural development Financial Implementation

(tables & graphs 4.2.1 to 4.2.2.12)

The total financial plan for all Rural Development financial instruments amounts to around 64.4 bio euros over the period 2000-2006. The Guarantee section of the EAGGF provides for 60% of the budget: 51% directly to EU-15 and 9% through the Temporary Rural Development Instrument (TRDI) aiming to support the New Member States during the period 2004-2006. The Guidance section share represents 35% and SAPARD reaches around 5% of the total.

The expenditures for the period 2000-2006 represented 85% of the budget foreseen for the whole period for EU-27. The rate of execution is the highest for the Guarantee section (99%). It is lower for the Guidance section (68%) due to the multi-annual rule allowing the payment even after the end of the period and for the TRDI (72%) as this instrument was only implemented later. The rate of execution of SAPARD is 68%,

¹⁹ It should be noticed that, in tables 4.1.2.1 to 4.1.2.2, the amount of EU contribution corresponds to the EU part of the commitments made by the beneficiary countries for contracted projects. For some measures this amount can be higher than the amount in EU Financial plan (allocation). This occurs when Member States have committed (contracted) more than they have allocated, assuming that the real execution will be lower. At the closure of the Sapard programmes the EU will not contribute more than the amount committed in the community budget for the entire period 2000-2006.

mainly due to the ongoing programs in Bulgaria and Romania since for the New Member States, the actions initiated before accession are realised at 95%.

Global rates of execution in EU-15 is 88% and are higher than 90% in most of the Member States whereas Portugal and Greece reached only 77% and 65% respectively, due to the importance of objective 1 regions. The rate of execution is of course lower in the New Member States (67 %), particularly in Bulgaria (48%) and Romania (46%).

Germany, Spain, Italy and France shared more or less equally 50% of the total budget of the period. Several Member States had a share of less than 1%.

For the large majority of the Member States of EU-15, most of the expenditure are covered by the Guarantee section. The contribution of the Guidance section is important only in Member States where a large part of the territory is designated as objective 1, such as Greece, Portugal, Spain, Italy and Germany.

For EU-15, the budget available under the Guidance section for the 2000-2006 programming period is established at 20.5 bio euros²⁰.

Around 90% of this budget (18.4 bio euros) is dedicated to Rural Development programs in Objective 1 regions. The rest (around 2.1 bio euros) is allocated to Leader+. If it represents around 10% of the Guidance section for EU-15, this share is considerably higher in some Member States: 100% in Denmark and Luxemburg, 89% in The Netherlands and 64% in Austria. Up to 2005, the total rate of execution of the Leader+ programme was globally 39%, ranging from 27% to 54%.

Since the enlargement of the Union, a budget of 2.1 bio euros has also been available under the Guidance section for the first 10 New Member States for the period 2004-2006. Up to 2006, the rate of execution has of course been rather low (52% for the New Member States but more than 70% in some of them) as the programs are still being implemented.

Since the accession and up to 2006, the first 10 New Member States have also benefited from 5.8 bio euros within the Guarantee section for the new Temporary Rural Development Instrument (TRDI).

The financial management of the Guarantee section for the EU-15 provide detailed information concerning the use of the different instruments by the different Member States based on the expenditure in 2000-2006²¹.

The structure of the expenditures of EU-15 is the following:

Agri-environment measures cover 44% of the expenditure, followed by LFA support (21%), encouragement of adaptation of rural areas (11%), forestry measures (9%), investment in agricultural holding -including setting-up of young farmers and training- (7%), early retirement scheme (5%), processing and marketing of agricultural products (3%) and the others (1%).

Compared to this average structure of expenditure, the main features of the structure in the different Member States are:

- Belgium: investments in agriculture are higher but LFA and agri-environment are lower,

²⁰ Including an amount of 43.8 mio euros for Peace II program implemented in UK and Ireland.

²¹ It should be kept in mind that this does not reflect perfectly the total use of the measures in some Member States where objective 1 regions are important, such as Greece, Portugal, Spain and Germany. In these cases, some of the measures are financed by important amounts funds from the Guidance section.

- Denmark: LFA support is lower,
- Germany: encouragement of adaptation of rural areas is higher,
- Greece: early retirement is higher but agri-environment is lower,
- Spain: forestry measures are higher but agri-environment is lower,
- France: investments in agriculture and LFA support are higher but agri-environment is lower,
- Ireland: LFA support and early retirement scheme are higher,
- Italy: investments in agriculture and agri-environment are higher but LFA support is lower,
- Luxemburg: investments in agriculture are higher but early retirement scheme, forestry measures and encouragement of adaptation of rural areas are lower,
- The Netherlands: encouragement of adaptation of rural areas is higher but early retirement scheme, LFA and improving processing and marketing are lower,
- Austria: agri-environment is higher but early retirement scheme and forestry measures are lower,
- Portugal: forestry measures and LFA support is higher,
- Finland: LFA support is higher but improving processing and marketing and : investments in agriculture are lower,
- Sweden: agri-environment is higher but early retirement scheme and forestry measures are lower,
- United-Kingdom: Forestry measures and LFA support are higher but investments in agriculture and early retirement scheme are lower.

The same type of analysis can be made using the EU contribution reported in the monitoring tables of SAPARD, covering the period 2000-20005. The reference is the aggregate of the 8 new Member States having benefited from SAPARD before accession. The structure of the commitments in Bulgaria and Romania over the period 2000-2005 is compared to this aggregate.

The main features of the structure of the commitments in SAPARD from the different countries are:

- For the aggregate of 8 New Member States, the support for processing & marketing of agricultural products covers 33% of the commitments, followed by rural infrastructure (29%), investments in agriculture (23%) and diversification of agriculture (9%). The implementation of the other measures is more limited,
- Czech Republic: land improvement / reparcelling and renovation of villages are higher but rural infrastructures and processing & marketing of agricultural products are lower,
- Estonia and Latvia: investments in agriculture and diversification of activities are higher but rural infrastructures is lower,
- Lithuania, Slovenia and Bulgaria: investments in agriculture is higher but rural infrastructures is lower,
- Hungary: investments in agriculture is higher but diversification of activities and rural infrastructures are lower,
- Poland: rural infrastructures is higher but investments in agriculture is lower,

- Slovakia: investments in agriculture and land improvement / reparation are higher but rural infrastructures is lower,
- Romania: rural infrastructures is higher but investments in agriculture and processing & marketing of agricultural products are lower,

Finally, it is also interesting to analyse, for each measure, how the expenditure is distributed among which Member States. This has been done for the EU-15 for the period 2000-2006:

- investments in agriculture-setting-up-training: 61% of expenditures in Italy and France,
- early retirement: 76% in Greece, Ireland and Spain,
- less-favoured areas: is better distributed among Member States: 71% in France, Finland, Germany Ireland and Austria. There is a higher use in France and Finland and a lower use in Italy;
- agri-environment: is also well distributed: 61% in Germany, Italy, Austria and France, but there is actually a relative lower use in France,
- processing and marketing of agricultural products: 75% in Spain, Italy and France,
- forestry measures: 69% in Spain, Italy, France and Ireland,
- adaptation-development of rural areas: 71% in Germany, France, Spain increasing to 90% when adding Italy and The Netherlands.

SECTION 2.2 OVERVIEW OF THE NEW PROGRAMMING PERIOD

The Rural Development Programmes that the Member States and regions prepared for the period 2007-2013 pursuant to Art. 15 (1) of Council Regulation (EC) 1698/2005 on support for rural development by the European Agricultural Fund for Rural Development, are currently under the official admission procedure by the European Commission. This section aims at providing an overview of the content of the programmes, consolidated at Member State level, based on the situation as of 09/11/07.

2.2.1. Overview of the RD policy framework for the 2007-2013 programming period

Considerable simplification has been introduced in the new programming period 2007-2013 as compared to the previous one. Rural Development is now financed by a single fund: the European Agricultural Fund for Rural Development (EAFRD). The previous 5 types of programming have been reduced to a single one, and there is now a single financial management and control framework instead of 3.

A strategic approach has also been introduced by the Community Strategic Guidelines adopted by the Council in February 2006²². According to this document, support in the area of rural development has to contribute to the key community priorities, to other measures defined for cohesion and environment and furthermore to the implementation of the reform of the Common Agricultural Policy.

Following the purposes of the CAP reform launched in 2003 (to realise an aid system that is independent from production, and to increase the population retention capacity of the rural regions) three major objectives for Rural Development policy have been set for the period 2007-13:

- Increasing the competitiveness of the agricultural and forestry sector;
- Improving the environment and countryside through support for land management;
- Enhancing the quality of life in rural areas and promoting diversification of economic activities.

The reform integrates the Leader Community Initiative into mainstream RD programmes.

Each of these objectives corresponds to an Axis, while Leader is considered as a methodological axis. The Regulation 1698/2005 proposes a set of measures organised by axis, following a hierarchy of objectives.

The measures of **Axis 1** serve the aim of further modernisation of production by encouraging farmers also to structural changes, resulting primarily in quality improvement. Efficiency and competitiveness require that a reasonable balance is found between farm viability, environmental protection, and the social dimension of rural development.

Measures linked to more rational land use and protection of the environment are grouped around **Axis 2**, which aim at ensuring the delivery of environmental services by agri-environment measures in rural areas, and preserving land management. These activities contribute to sustainable rural development by encouraging the main actor to keep up land management so as to preserve and enhance the natural space and landscape. Such measures also help prevent the abandonment of agricultural land use through payments to compensate natural handicaps or handicaps resulting from

²² Council Decision 2006/144/EC of 20.02.2006

environmental restrictions. A general condition for measures under Axis 2 is respect of the relevant EU and national mandatory requirements (cross-compliance).

The measures under **Axis 3** are aimed at improving the income-producing possibilities and quality of life of residents of rural areas by encouraging a 'living countryside' and helping maintain and improve the social and economic fabric, in particular in the more remote rural areas facing depopulation.

The **Leader** model is to be continued and consolidated at the EU level by integrating what used to be a Community Initiative in the programming period 2000-2006 as an obligatory element into the rural development programs to be implemented by the Member States during 2007-2013. Each programme contains a Leader axis to finance the implementation of the local development strategies of Local Action Groups, built on one or more of the three thematic axes, the cooperation projects between them and the capacity building necessary for the preparation of local development strategies and the animation of the territory.

As far as programming is concerned, Member States had first to submit National Strategy Plans (NSP), with the aim of translating the EU priorities agreed in the Community Strategic Guidelines to the member state situation and ensuring complementarity with Cohesion policy. In a second step, Member States or regions had to set up their Rural Development Programmes (RDP) articulating the 4 axes.

To ensure some overall balance in the programme, a minimum funding for each axis is required²³: 10% for Axis 1, 25% for Axis 2, 10% for Axis 3 and 5% for Leader axis (for the New Member States a phasing in period is foreseen in such a way that at least 2.5% is reserved for axis 4 over the period). It should be noticed that, as Leader axis is also a delivery mechanism of the measures of the three thematic axes, it may overlap the minimum funding of these axis. As an example, the minimum spending of 5% of Leader axis may partly correspond to the 10% minimum spending of axis 1.

2.2.2. The funding of Rural Development programming period 2007-2013

Within the framework of the new Financial Perspectives, rural development was allocated 88.3 billion euros from EAFRD envelope over the period 2007-2013, of which, at this stage of programming, 58.5 billion euros i.e. 62.6% are earmarked for Convergence regions.

National envelopes have been attributed to the Member States, by Commission Decision 2006/636/CE.

In addition, Council Regulation (EC) 378/2007 opens the possibility of a voluntary modulation, i.e. reducing the direct payments and transferring the corresponding funds to increase the financing of RD programs. It concerns Portugal and United-Kingdom.

Table 2.2.1 provides an overview of the RD funding on 9/11/2007. It should be kept in mind that all public funds are not covered in this overview, notably the support provided in the framework of the state aids is not covered.

At the end of October 2007, all the 27 National Strategy Plans have been submitted; and all the 94 expected rural development programmes have been received by the Commission (with the exception of one small programme concerning the Portuguese rural network, which does not influence the envelope). They consist in 88 national or regional RDPs, 2 National Frameworks, and 3 Programmes on National rural Development Network. 37 programmes have already been approved by the Rural Development Committee, representing 40% of the number of programmes and 55% of

²³ Article 17 of Council Regulation (EC) 1698/2005

the overall EAFRD budget. It is planned that 26 additional RDPs will be adopted by the Rural Development Committee by the end of 2007.

Table 2.2.1 Rural Development funding

Member State	EAFRD 2007-2013 envelope (Euros) (EU-25 : Commission Decision 2006/636/CE)	Situation as of 09/11/2007 (Euros)	
		EAFRD 2007-2013 envelope including voluntary modulation	Total Public
Belgium	418 610 306	418 610 306	1 144 554 103
Bulgaria	2 609 098 596	2 609 098 596	3 241 938 392
Czech Republic	2 815 506 354	2 815 506 354	3 615 803 370
Denmark	444 660 796	444 660 796	830 339 175
Germany	8 112 517 055	8 112 517 055	13 213 670 128
Estonia	714 658 855	714 658 855	924 863 846
Ireland	2 339 914 590	2 339 914 590	4 298 753 800
Greece	3 707 304 424	3 707 304 424	5 077 995 174
Spain	7 213 917 799	7 213 917 796	13 909 353 339
France	6 441 965 109	6 441 965 109	11 944 576 223
Italy	8 292 009 883	8 292 009 883	16 746 145 685
Cyprus	162 523 574	162 523 574	325 047 148
Latvia	1 041 113 504	1 041 113 504	1 361 646 323
Lithuania	1 743 360 093	1 743 360 093	2 260 374 510
Luxemburg	90 037 826	90 037 826	368 457 903
Hungary	3 805 843 392	3 805 843 392	5 159 109 183
Malta	76 633 355	76 633 355	100 251 140
Netherlands	486 521 167	486 521 167	973 042 334
Austria	3 911 469 992	3 911 469 992	7 822 289 054
Poland	13 230 038 156	13 230 038 156	17 217 817 440
Portugal	3 929 325 028	3 917 537 053	4 972 733 818
Romania	8 022 504 745	8 022 504 745	9 970 795 597
Slovenia	900 266 729	900 266 729	1 158 928 915
Slovakia	1 969 418 078	1 969 418 078	2 562 585 914
Finland	2 079 932 907	2 079 932 907	6 682 617 262
Sweden	1 825 647 954	1 825 647 954	3 917 170 025
United Kingdom	1 909 574 420	4 440 733 394	8 880 463 168
TOTAL	88 294 374 687	90 813 745 683	148 681 322 968

Note: at 09/11/07, one programme for Portugal is missing.

The following sections present an overview of the allocation of funds, limited to EAFRD, between axis and measures based on information received at the 9th of November 2007. Due to the different stages of approval of the programmes, this may be still subject to changes. Information has been consolidated at Member State level. Last but not least, data presented include voluntary modulation for Member States who chose to apply it (UK & PT).

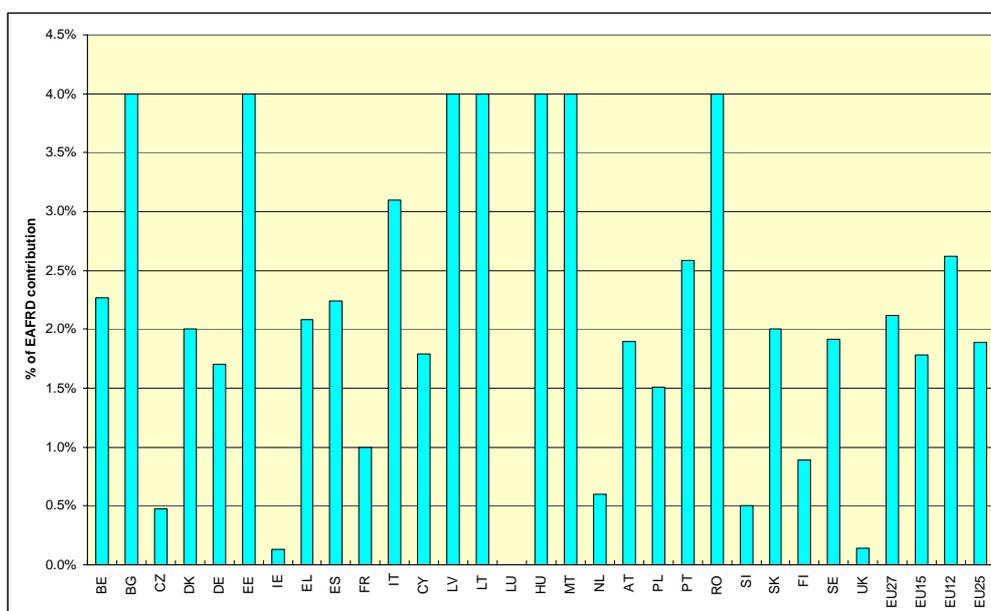
2.2.3. Financial structure of programming

The structure of programmed expenditure can broadly be described in 5 blocks, corresponding to the 4 axes established in the Regulation, and to the technical assistance.

2.2.3.1. Technical assistance

According to article 66 of Council Regulation (EC) 1698/2005, there are 2 types of technical assistance, one that is at the initiative of the Commission or on its behalf, and one that is at the initiative of the Member States. In the latter case, the EAFRD may finance preparation, management, monitoring, evaluation information and control activities of programme assistance. Up to 4% of the total amount of each programme may be devoted to these activities. This % varies according to Member States, with a majority of the Member States who joined in 2004 & 2007 applying the maximum percentage (Bulgaria, Estonia, Latvia, Lithuania, Hungary, Malta & Romania), while France (1.0%), Finland (0.9%), the Netherlands (0.6%), Slovenia (0.5%), Czech Republic (0.5%), the United Kingdom (0.1%), Ireland (0.1%) and Luxembourg (0%) dedicate less than 1% of the EAFRD contribution to this action.

Graph 2.2.1 Importance of Technical assistance by Member State, 2007-2013

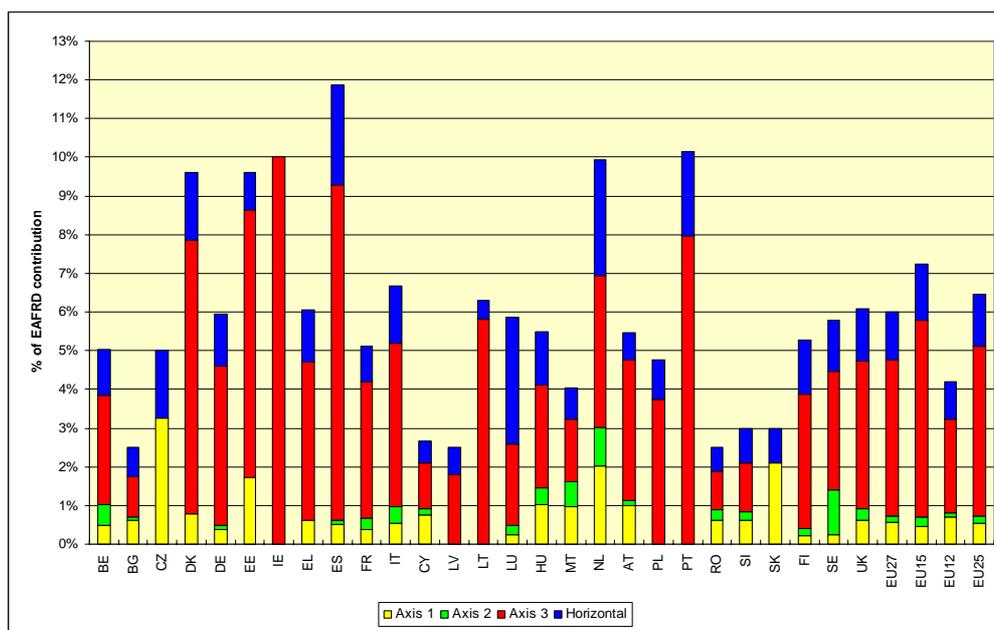


2.2.3.2. The Leader axis and its contribution to the three core objectives

As previously mentioned, at least 5% of the EAFRD total contribution to the programme shall be reserved for Leader axis, diminished to 2.5% for New Member States. As can be seen from graph 2.2.2, at EU27 level, Axis 4 represents 6% of the EAFRD contribution. Spain (11.9%), Portugal (10.2%), Ireland (10.0%), the Netherlands (9.9%), Denmark (9.6%) and Estonia (9.6%) are the Member States which attribute most importance to this bottom-up approach, while it is less popular in Slovenia (3.0%), Slovakia (3.0%), Cyprus (2.7%), Latvia (2.5%), Bulgaria (2.5%) and Romania (2.5%).

Through Leader, support is granted to local action groups to implement local development strategies with a view to achieving the objectives of one or more of the three other axes, as well as to implement cooperation project involving the objectives selected, and to run and animate the local action group. This way the amounts allocated to the Axis 4 contribute to the achievement of the 3 core objectives, and are taken into account when determining the percentage allocated to each axis.

Graph 2.2.2 Importance and composition of Leader by Member State, 2007-2013



Strikingly, measures implemented via Leader contribute mainly to Axis 3. In Ireland, Latvia, Lithuania, Poland and Portugal, Leader even contributes exclusively to Axis 3. On the other hand, in Czech Republic and Slovakia, they are entirely devoted to Axis 1, while Axis 2 is in any case the least represented. It is worth noting that in some programmes, Axis 3 is only implemented via Leader (e.g. in Ireland).

2.2.3.3. Relative importance of the three main axes

According to article 17, at least 10% of the total EAFRD contribution should be devoted to axis 1, at least 25% to axis 2, and at least 10% to axis 3.

At EU27 level, Axis 1 (including Leader actions contributing to this objective) represents 35% of the total EAFRD contribution, while Axis 2 gets the lion's share with 44%, and Axis 3 19%.

The three graphs below present the relative importance of the 3 main axes, as percentage of the EAFRD contribution devoted to these 3 axes. Funds implemented through Leader have been reattributed to the respective axes. Despite the common minimum percentages, the picture looks quite different in the various Member States.

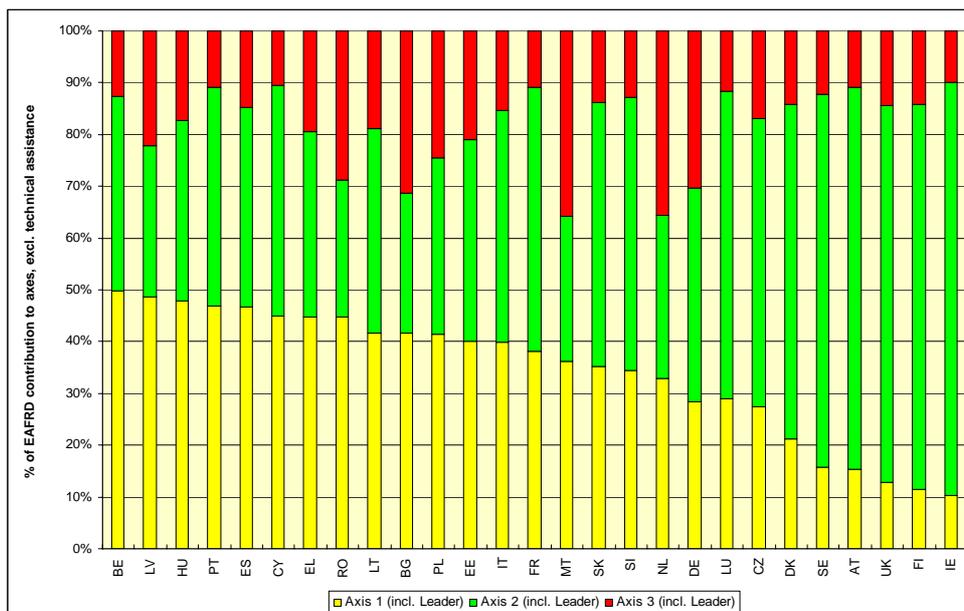
Measures of Axis 1 show the most important percentages in Belgium (50%), Latvia (49%), Hungary (48%), Portugal (47%), Spain (47%), Cyprus (45%), Greece (45%), and Romania (45%). Less than 20% is attributed to this axis in Sweden (16%), Austria (15%), the United Kingdom (13%), Finland (12%) and Ireland (10%).

Contribution to Axis 2 is the highest in Ireland (80%), Finland (74%), Austria (74%), the United Kingdom (74%), Sweden (72%), Denmark (65%), and Luxemburg (60%). Contribution to Axis 2 is less than 30% in Latvia (29%), Malta (28%), Bulgaria (27%) and Romania (26%).

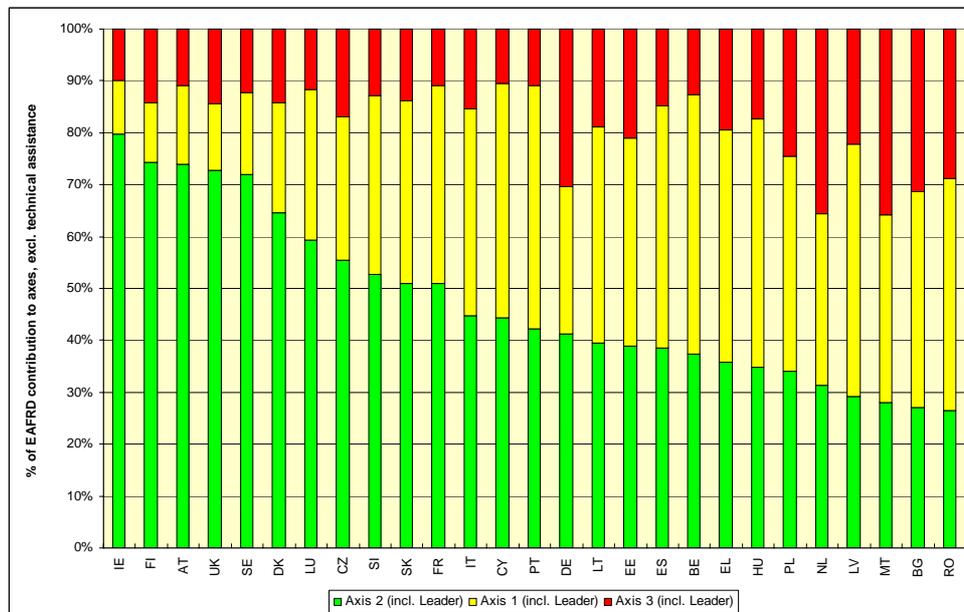
EAFRD contribution allocated to Axis 3 never exceeds 40%. The highest rates of contribution are found in Malta (36%), the Netherlands (36%), Bulgaria (31%), Germany (31%), Romania (29%), Poland (25%), Latvia (22%) and Estonia (21%), and the lowest rates in France (11%), Austria (11%), Portugal (11%), Cyprus (11%) and Ireland (10%).

Graph 2.2.3 Relative importance of the 3 thematic axes by Member State, 2007-2013

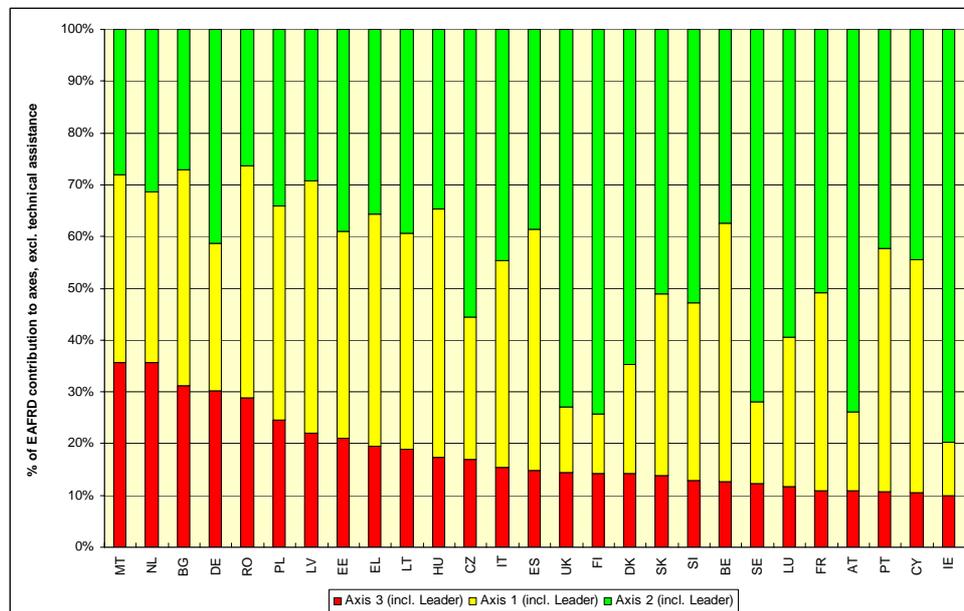
a – Axis 1



b – Axis 2



c – Axis 3



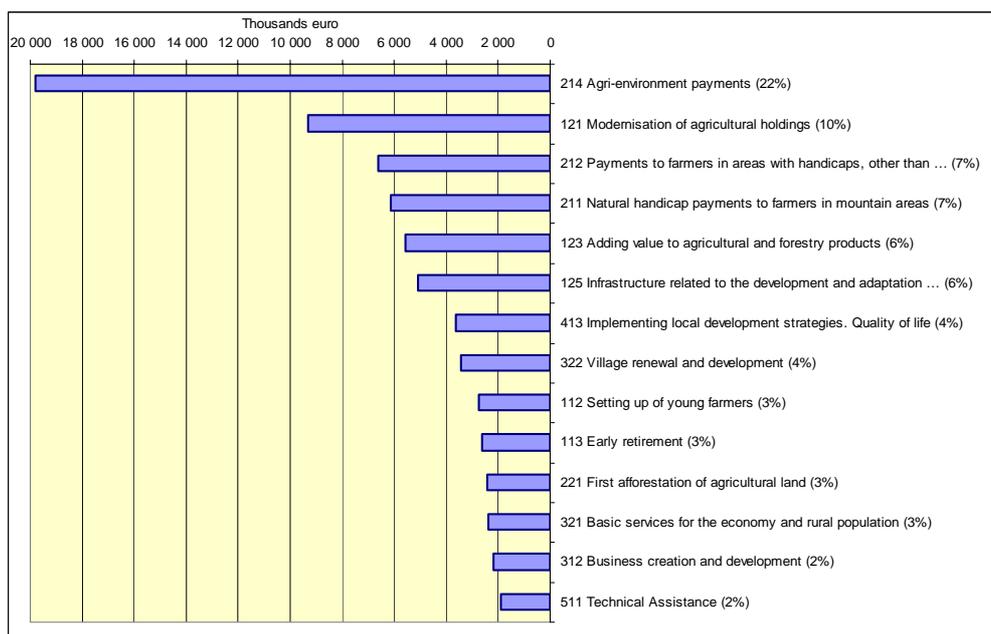
2.2.4. Main Rural Development instruments²⁴

Organised along the axes, a set of 42 measures is proposed to the Member States. Two additional measures have also been made available specifically for Bulgaria and Romania, namely measure "143 - Provision of farm advisory and extension services in Bulgaria and Romania" and measure "611 - Complements to Direct Payments for Bulgaria and Romania". They represent 0.8 billion euros for the whole period, or 0.8% of the whole EAFRD envelope.

2.2.4.1. At EU level

Graph 2.2.4 presents the most important measures for the 2007-2013 programming period in terms of percentage of EAFRD contribution at EU-27 level. All measures representing more than 2% of the EAFRD envelope are on the graph, they represent 81.3% of the total.

Graph 2.2.4 Main RD measures of the 2007-2013 programming period - EU-27



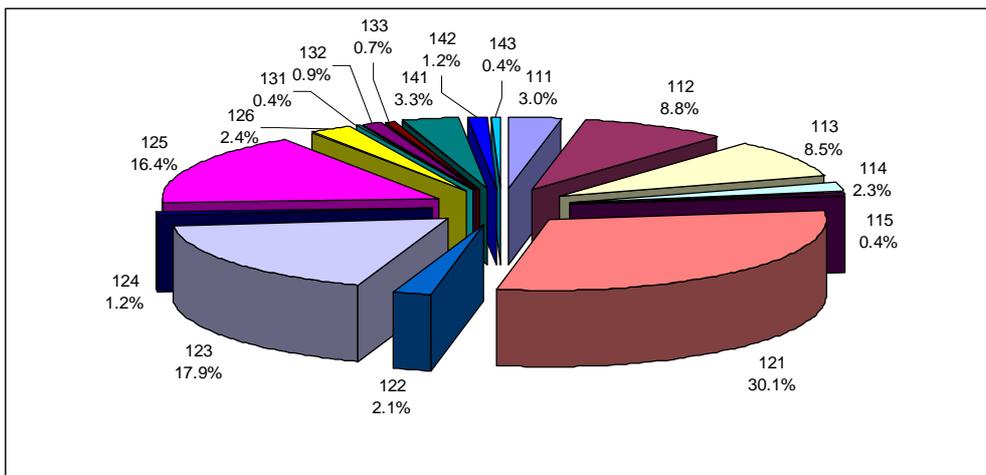
At EU-27 level; the most important measures are agri-environment payments (22%), modernisation of agricultural holdings (10%), and less favoured areas payments (7% in mountain areas and 7% in other areas). Axis 2 gets therefore the lion share. The first measure concerning Axis 3 is "413 – Implementing local development strategies – quality of life", which correspond to axis 3 measures implemented via Leader. It is followed by village renewal and development.

Graphs 2.2.5 show the relative importance of measures within their respective axis. As some of them may be implemented via Leader, the picture may be slightly biased, especially for Axis 3.

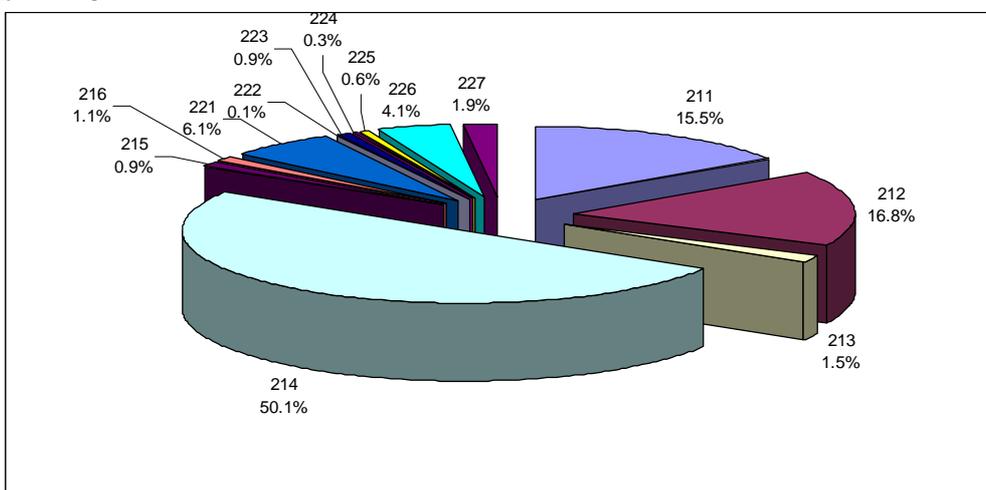
²⁴ Reminder: the analysis only covers EAFRD.

Graph 2.2.5 Relative importance of measures within axis for the 2007-2013 programming period - EU-27

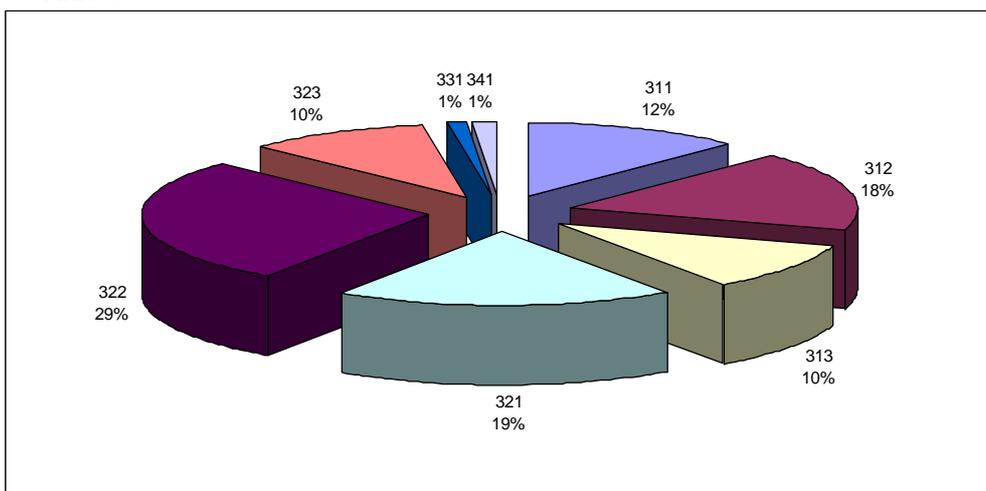
a – Axis 1



b – Axis 2



c – Axis 3



In Axis 1, the measure "121 - Modernisation of Agricultural Holdings" is the most important (9.3 billion Euros). It is followed by "123 - Adding value to agricultural and forestry products" (5.6 billion Euros) and "125 - Infrastructure related to the development of agriculture and forestry" (5.1 billion Euros). These 3 measures account for 64% of all funds under Axis 1.

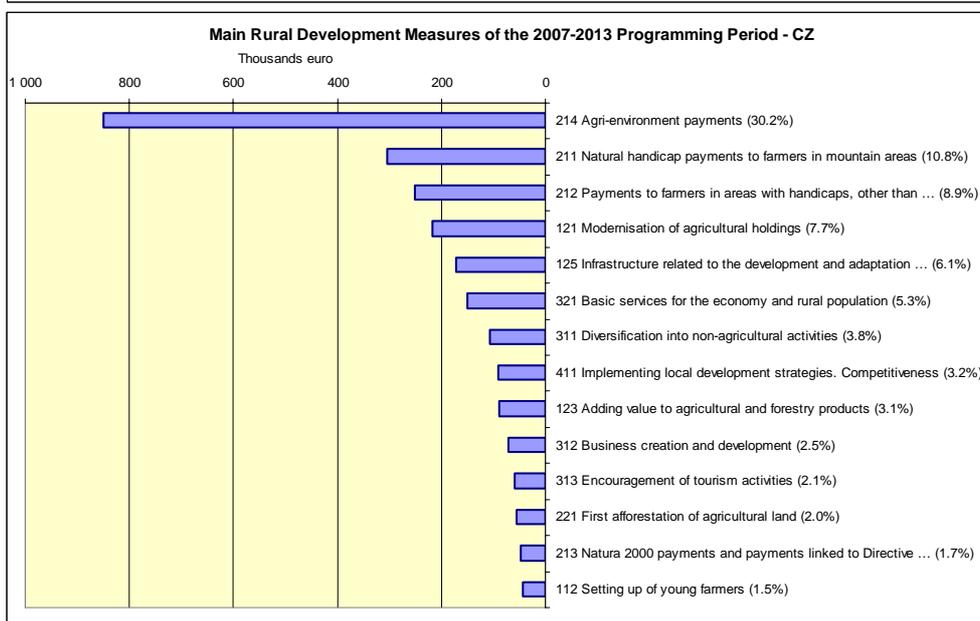
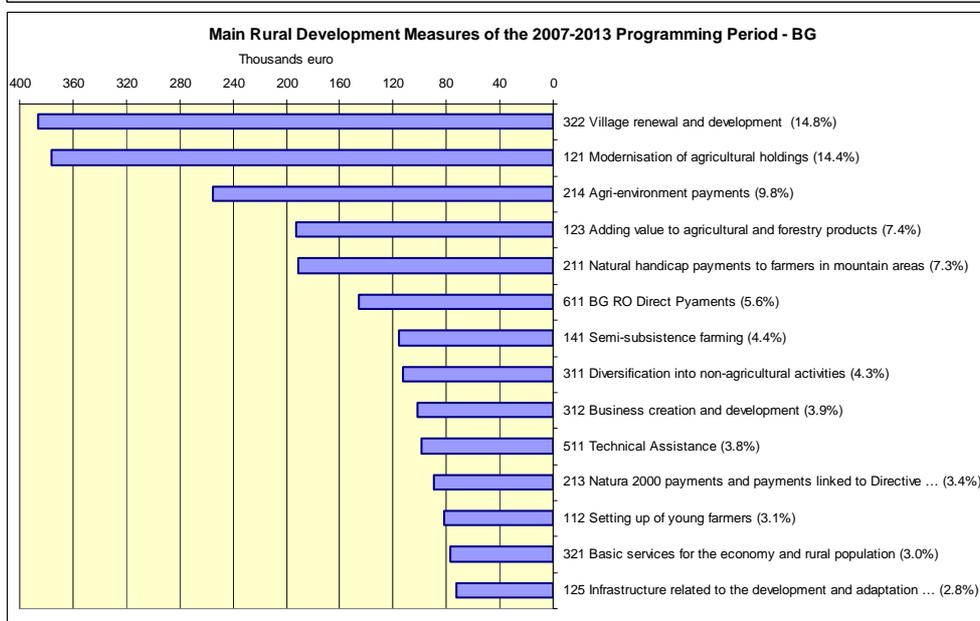
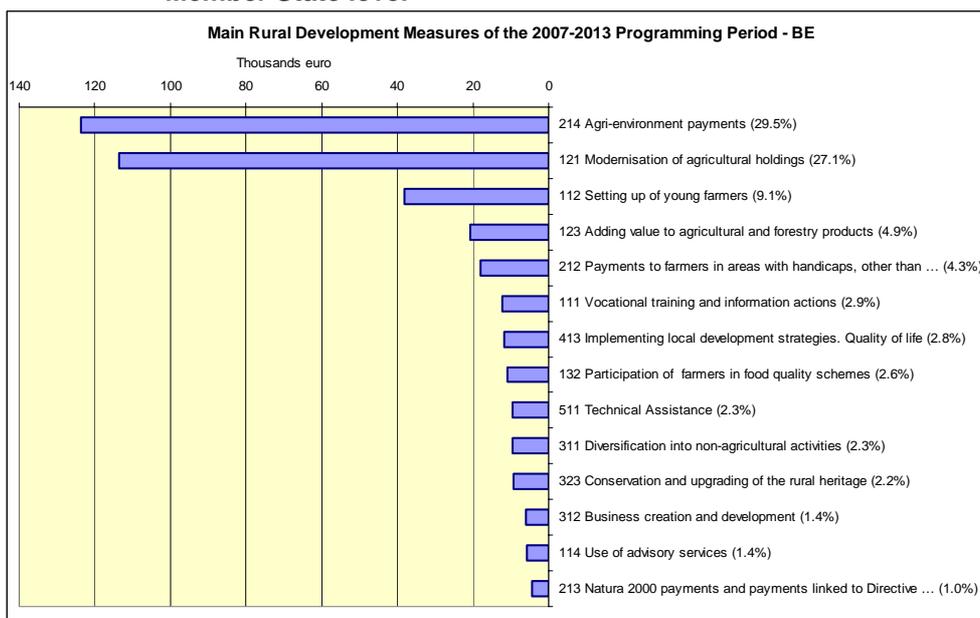
Under Axis 2, the same concentration on a few measures can be observed, with "214 – Agri-environment payments" (19.8 billion Euros) representing more than half of all funds under Axis 2. It is followed by LFA payments in and outside mountains areas (measures 211 & 212, which sum up to 12.7 billion Euros). These three measures account for 82% of all funds under Axis 2.

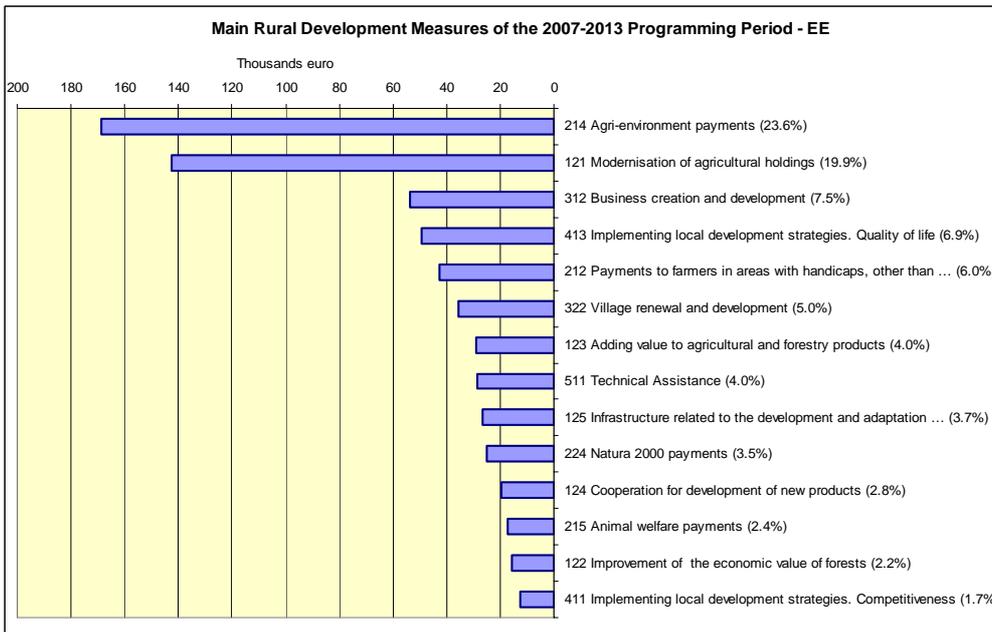
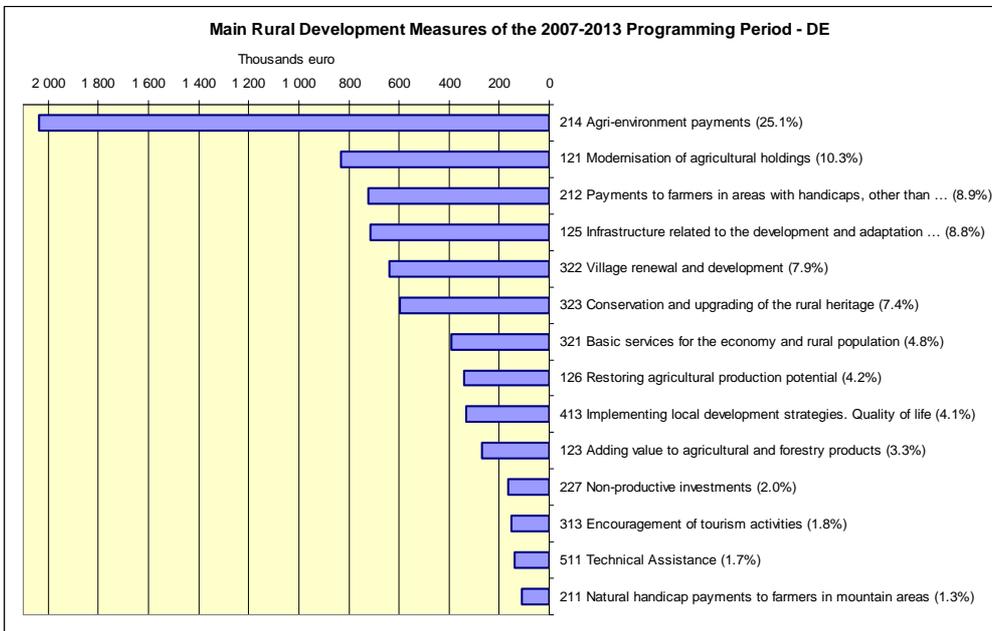
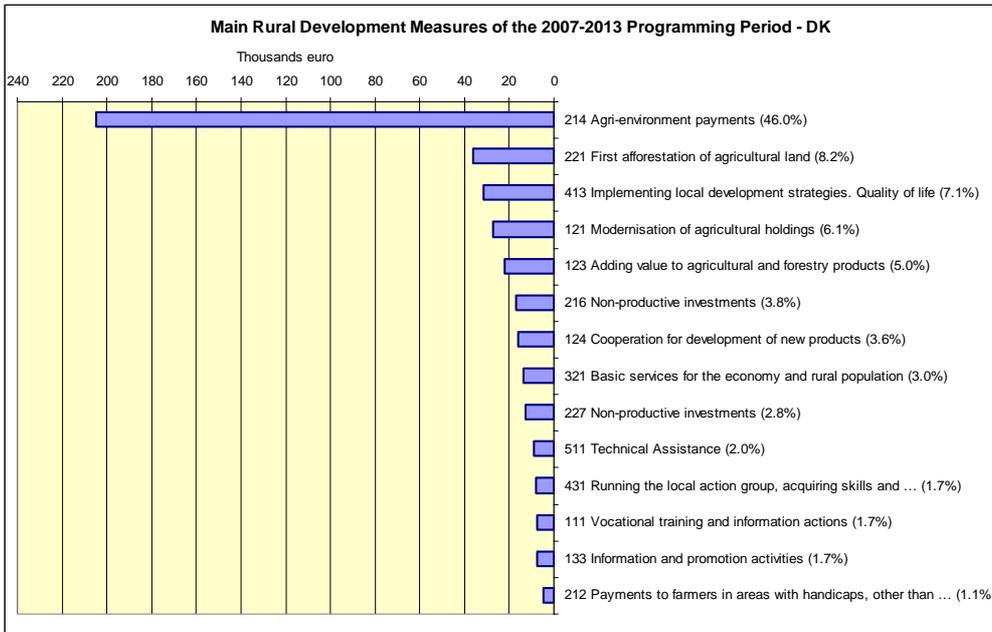
Last one, Axis 3 seems to be more balanced as the three main measures account only for 49% of the total of funds allocated to this Axis. It is namely "312- Village renewal and development" (3.4 billion Euros), "321- Basic services for the economy and rural population" (2.4 billion Euros) and "312- Business creation and development" (2.2 billion Euros).

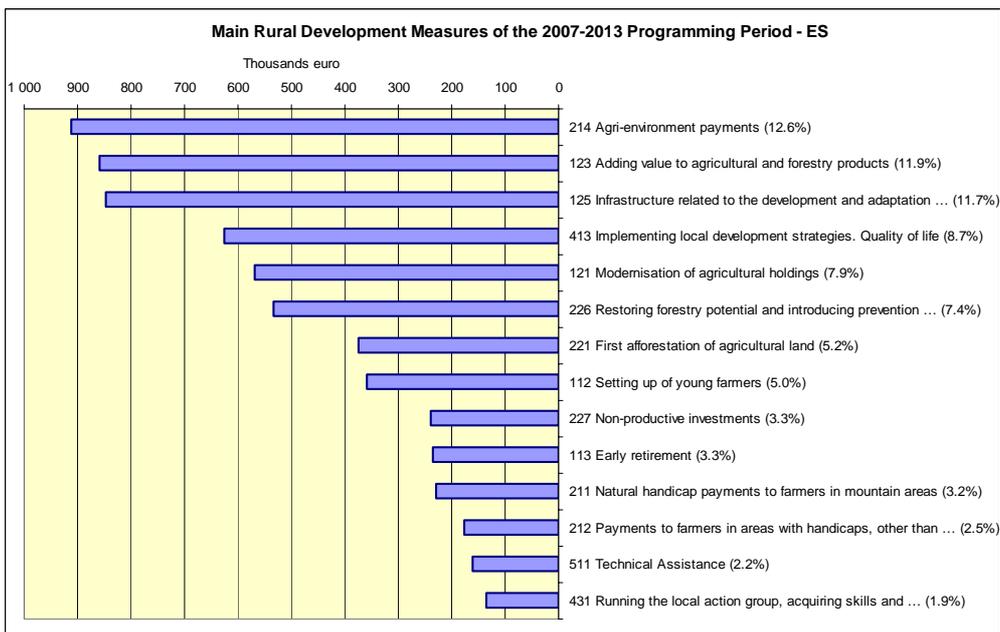
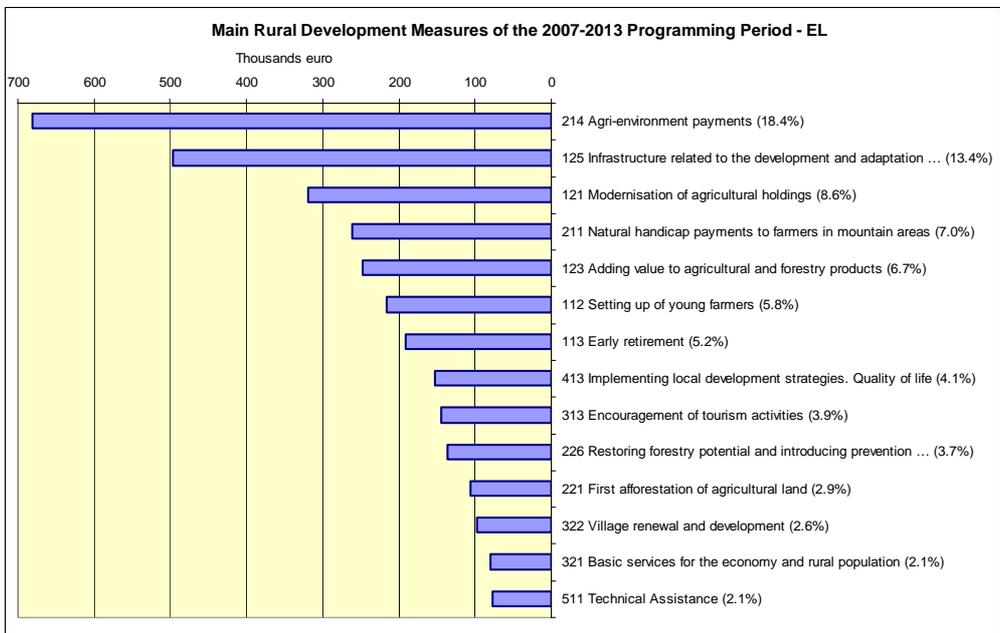
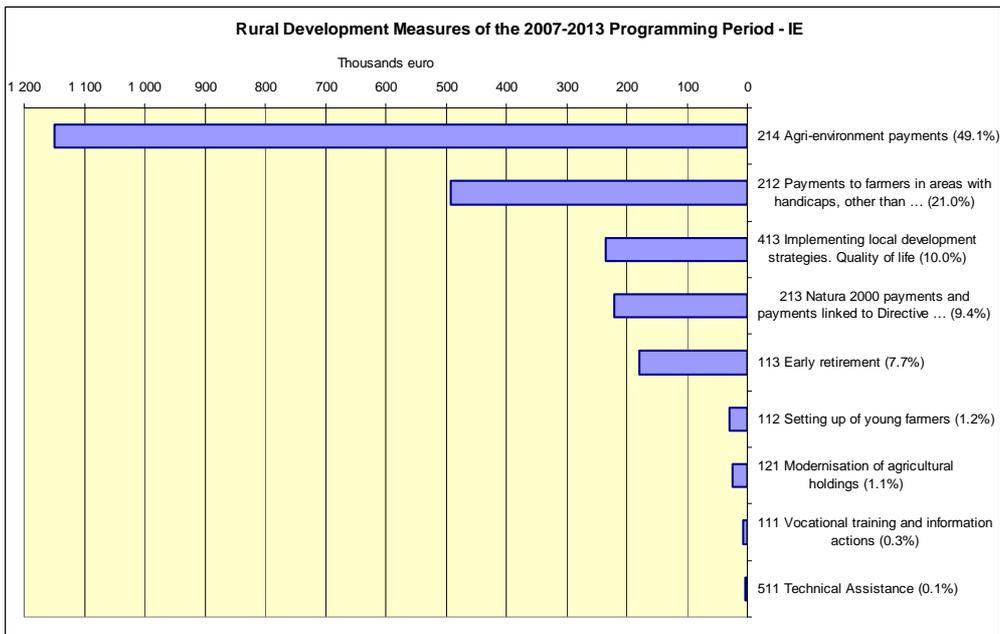
2.2.4.2. At Member State level

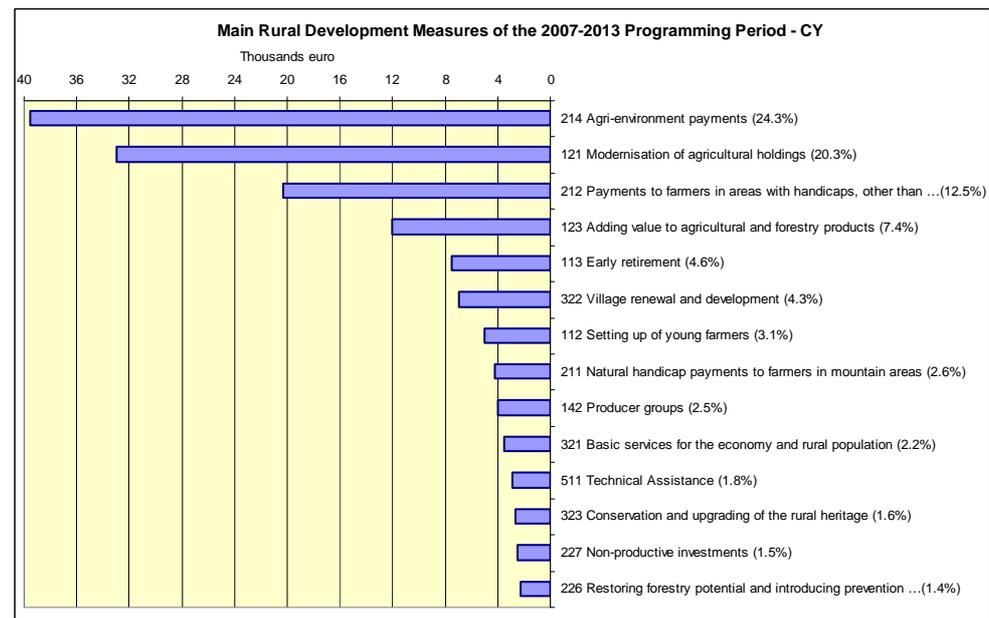
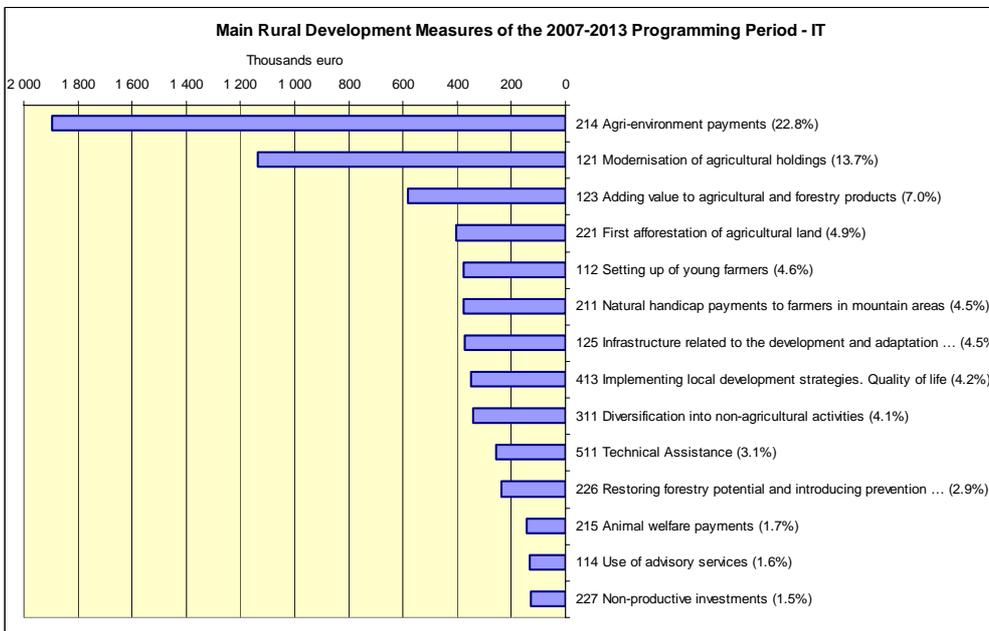
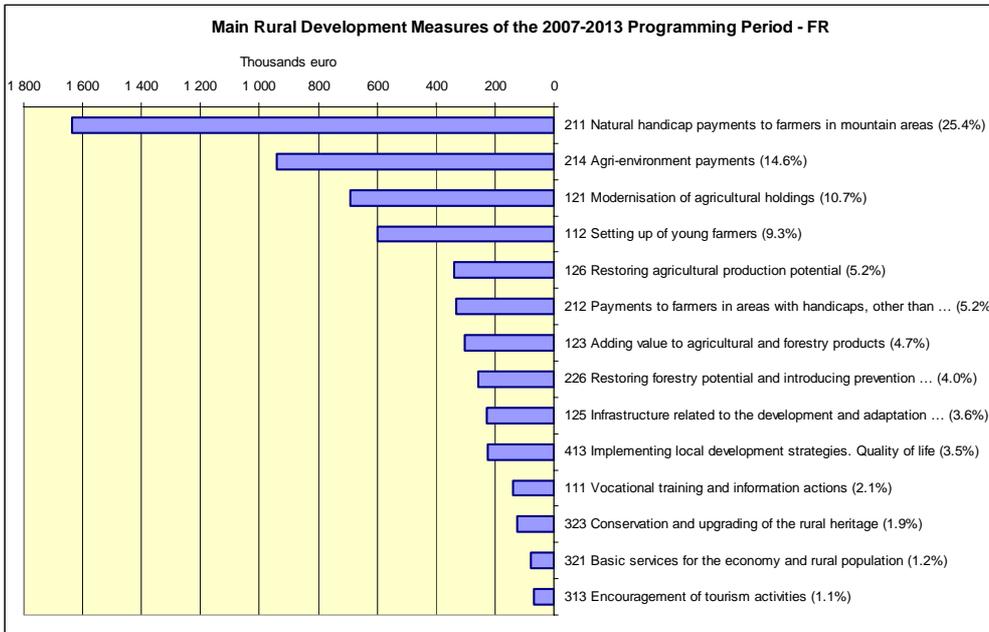
The series of graphs 2.2.6 presents the most important measures at Member State level. One can notice that in some cases, EAFRD allocation is concentrated on a very limited number of measures (e.g. Ireland), while in other, the allocation seems more widespread. It is also worth looking at the large difference between the most popular measures among the Member States.

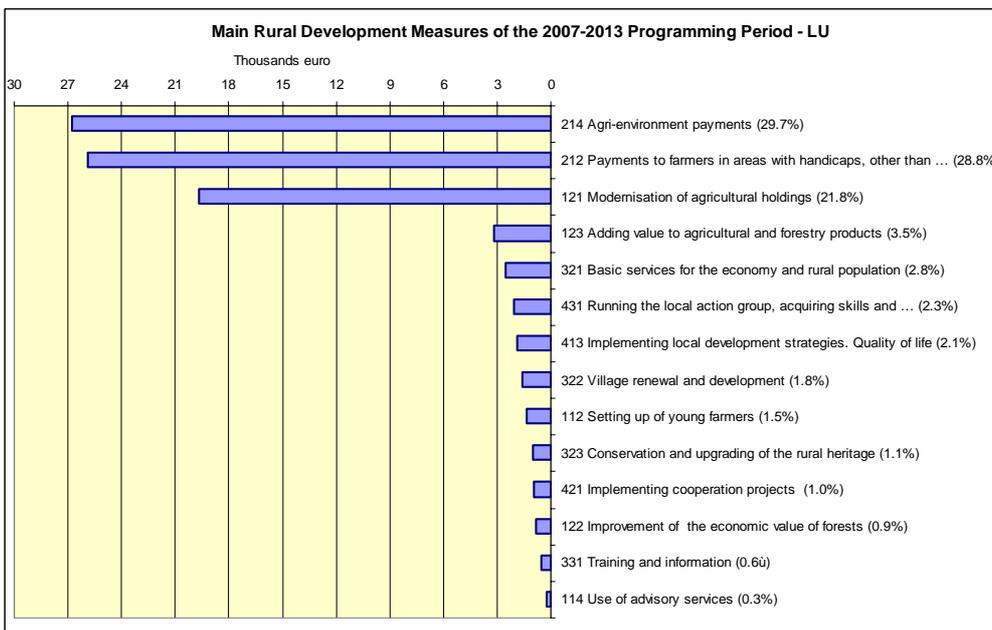
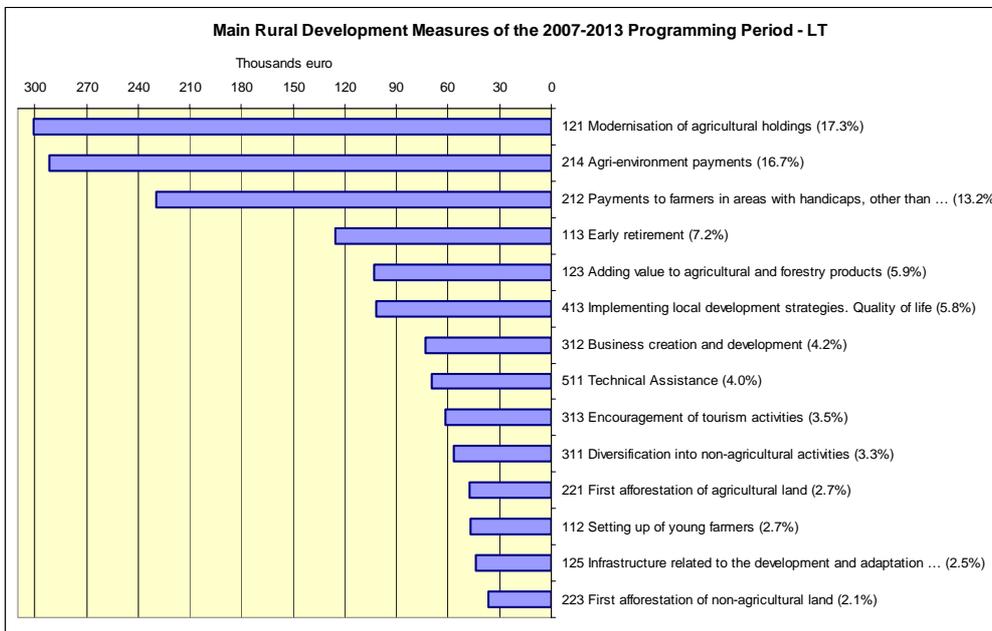
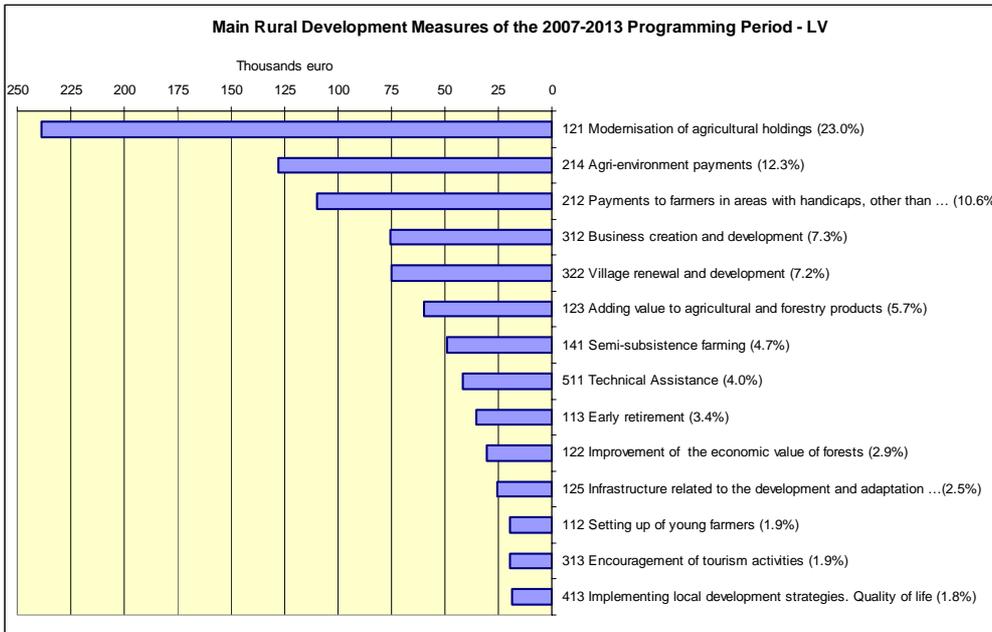
Graph 2.2.6 Main RD measures of the 2007-2013 programming period at Member State level

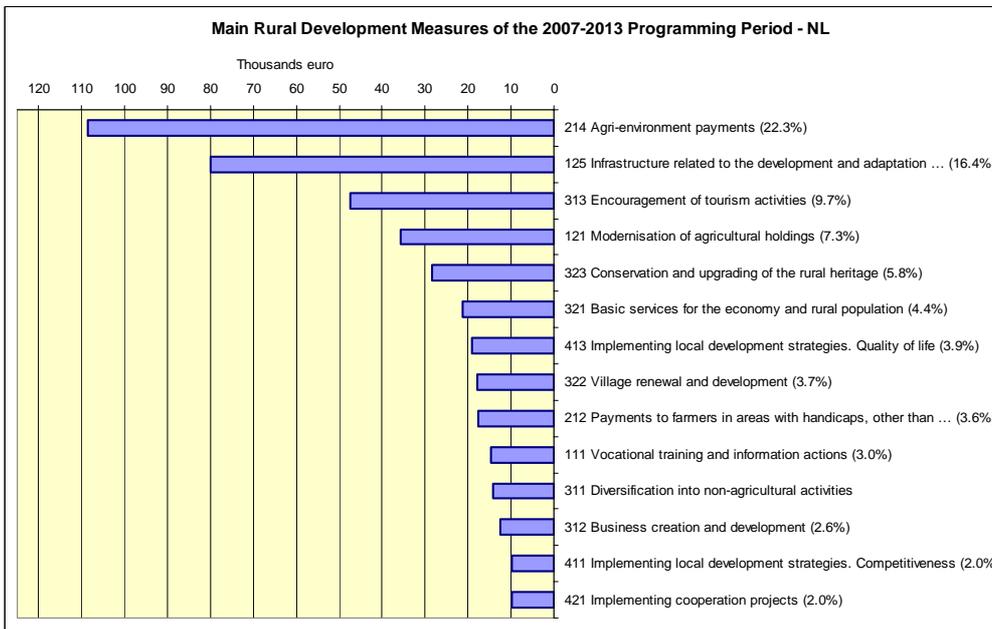
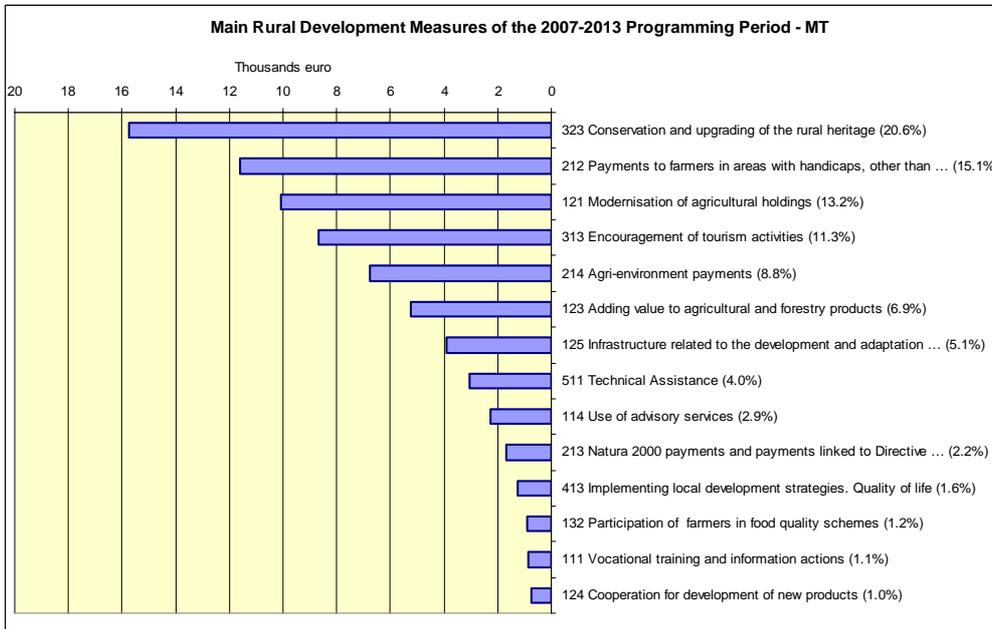
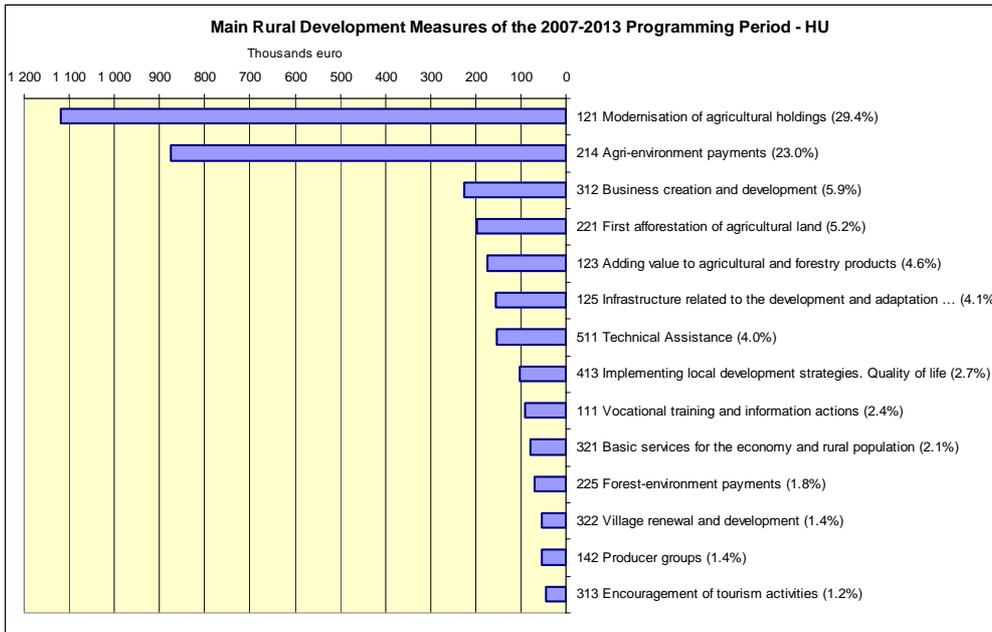


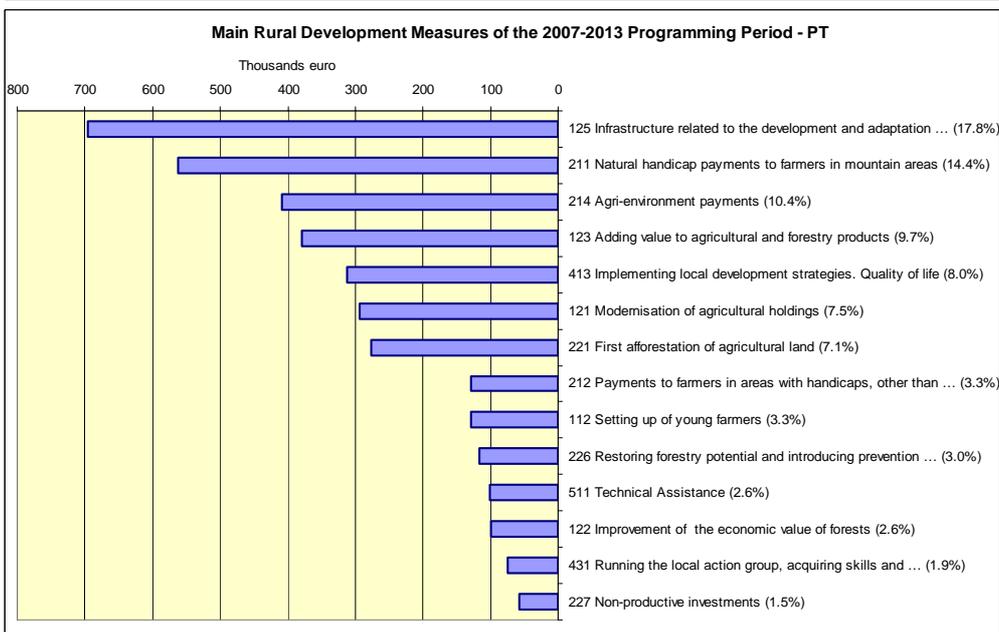
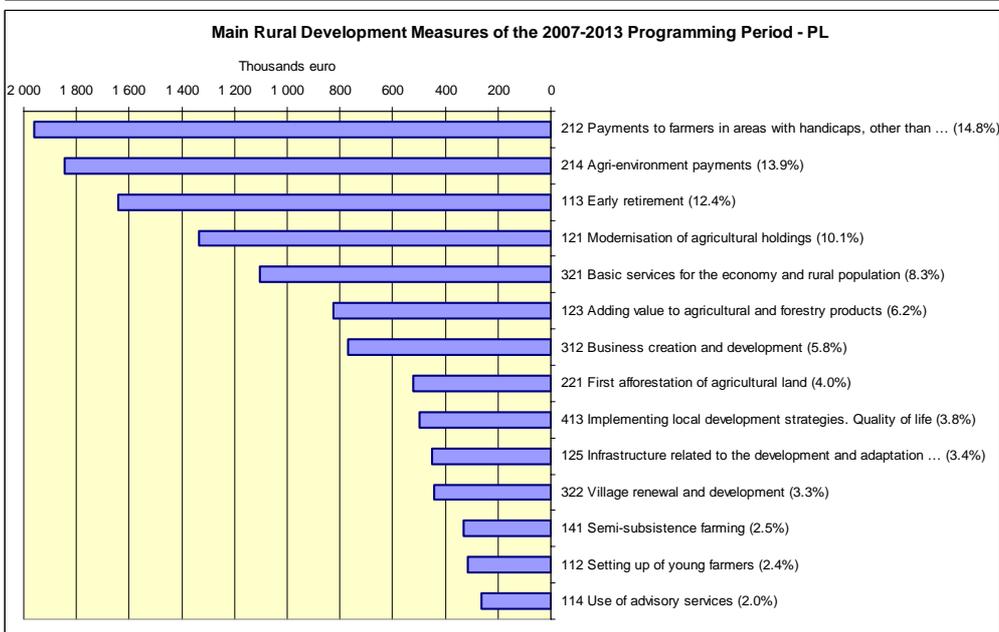
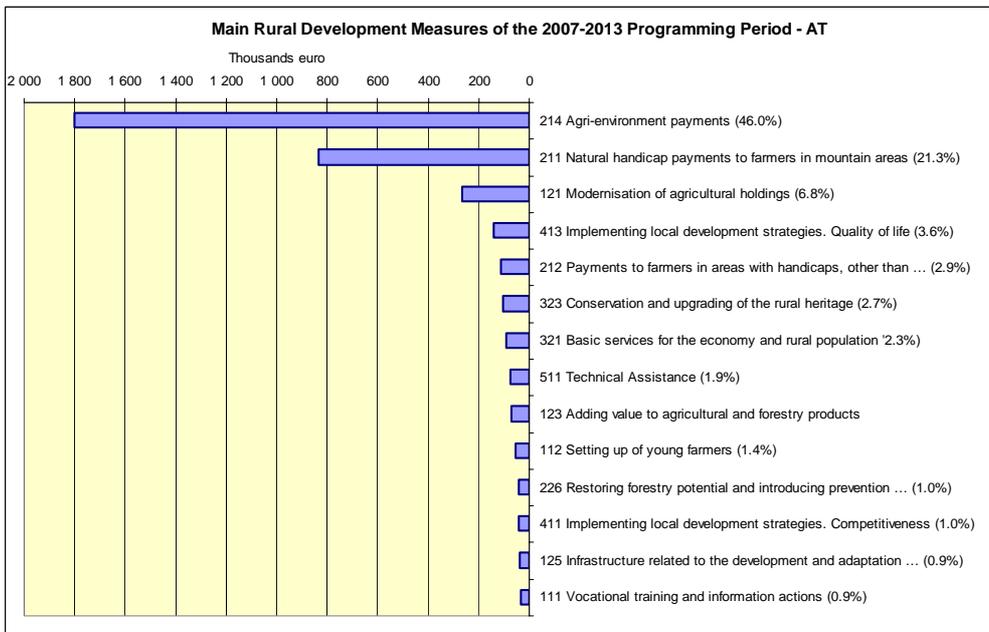


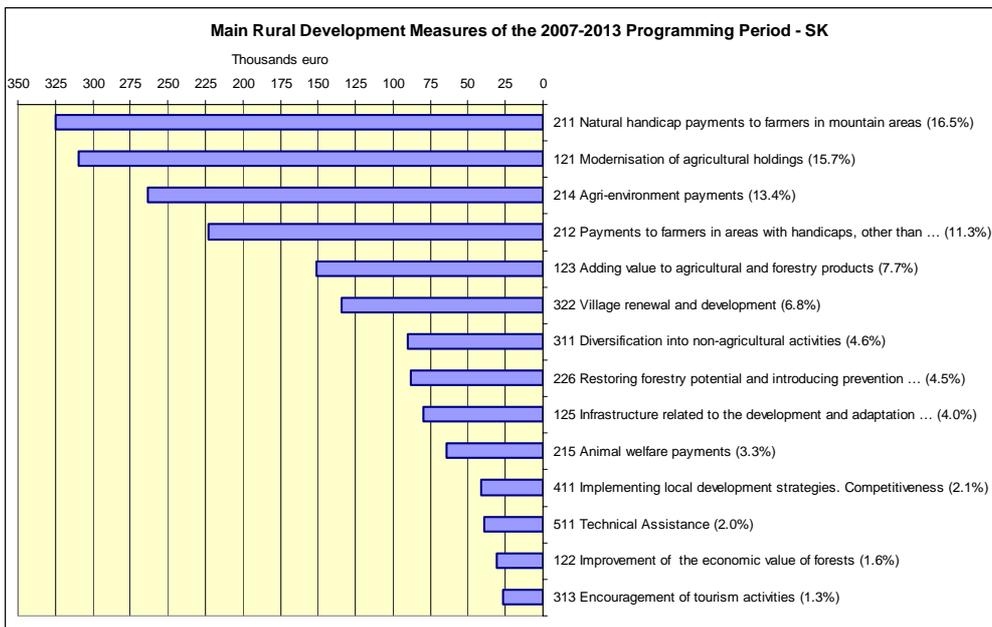
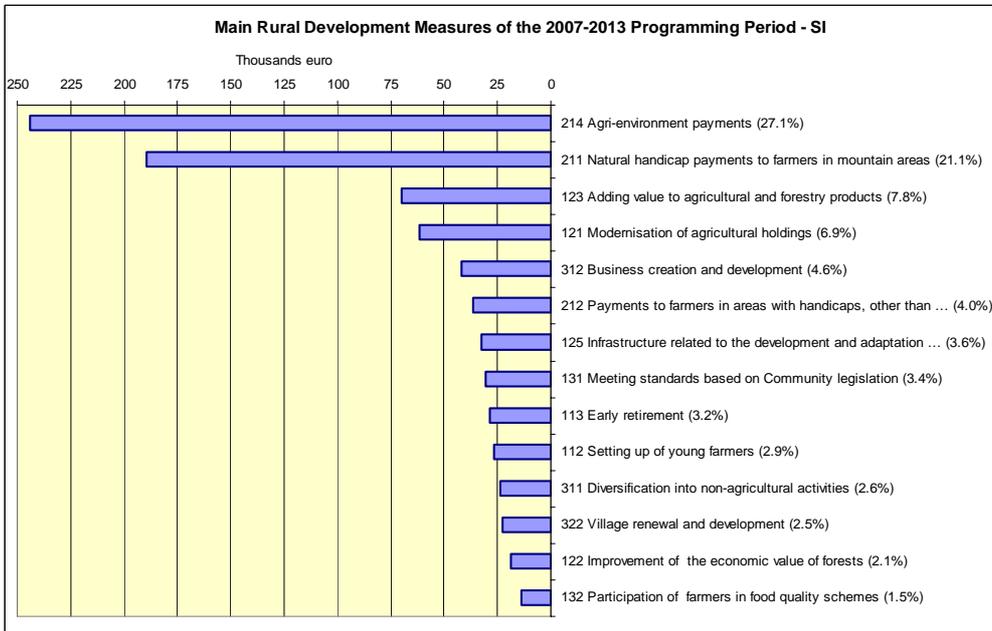
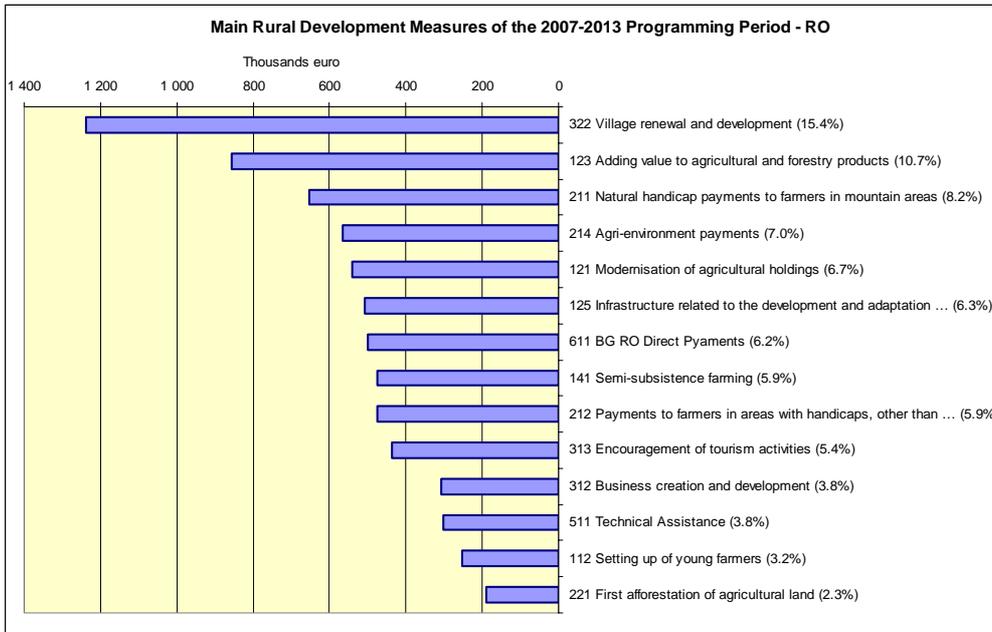


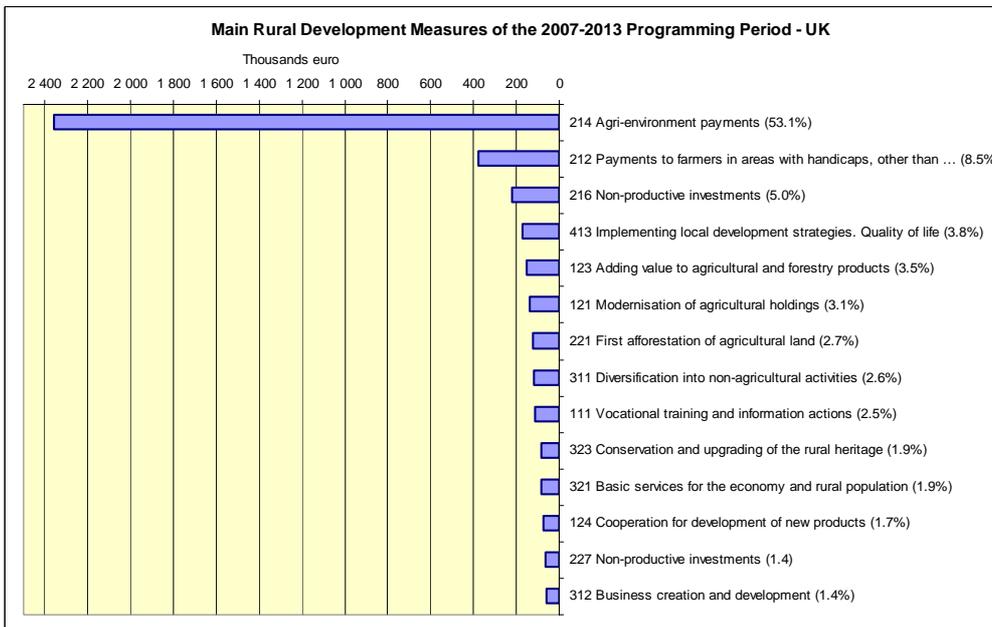
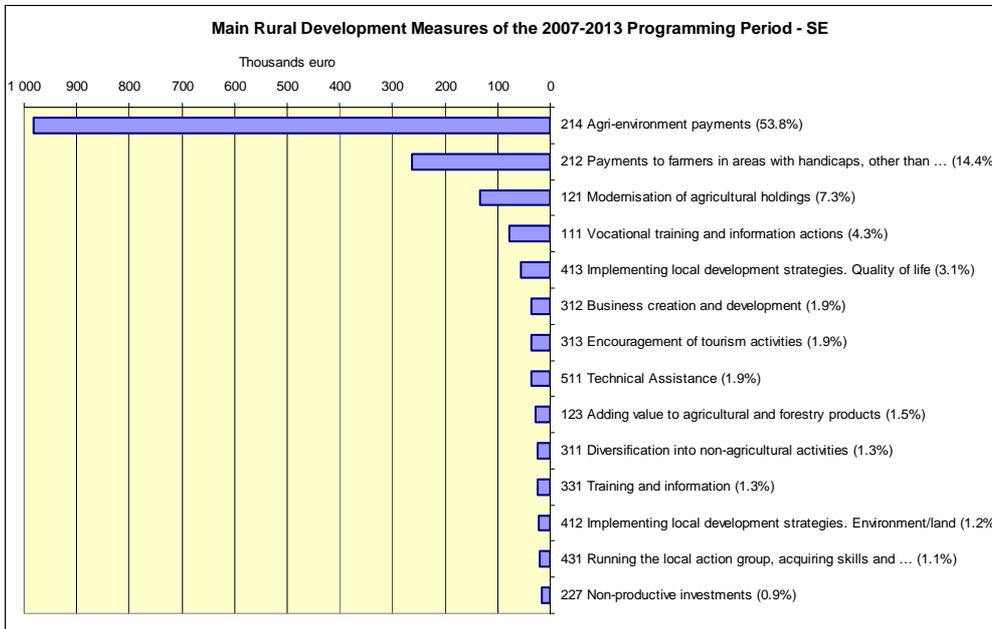
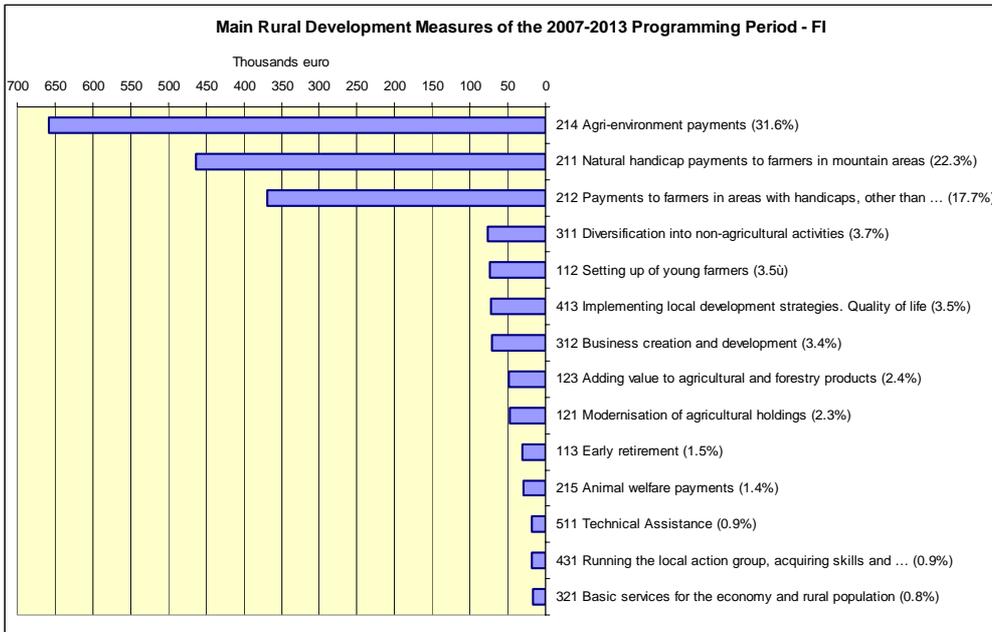












SECTION 2.3 PROSPECTS FOR SELECTED RURAL DEVELOPMENT INDICATORS²⁵

2.3.1. Introduction

The following pages discuss the future development of selected economic indicators (income and labour input) and agro-environmental indicators (gross nitrogen balances, emission of greenhouse gases, ammonia emissions), based on estimations done with the CAPRI modelling system. As the calculation of indicators in CAPRI reflects the data structure underlying its economic modelling components in order to allow analysis for projections or counterfactual scenarios at Pan-European scale, a full harmonization with the indicator fact sheets in CMEF is not possible. The analysis therefore mostly presents changes between a three year average around 2001 and 2013, and not absolute values for that year.

This modelling work is linked to the results presented in the publication “Prospects for Agricultural Markets 2006-2013 - update”²⁶, adding a regional dimension and environmental perspective to it, by consistently down-scaling the EU results to Member States and NUTS II regions.

2.3.2. Summary: market outlook for agricultural products

The main drivers and their consequences on the medium term may be summarized as follows. In the *arable crop* sector, the recent reform of the sugar market leads to drop in sugar beet area by about -17.5%, with a reduction in production of -2.5% as a result of yield increases above 10%. Oilseed production is projected to expand by +5.0% partly as a response to still growing yields and the favourable developments in global vegetable oil markets, especially for rape seed oil²⁷. In opposite to oilseed markets, cereals production is estimated to grow less due to the combined effects of stagnating feed and food demand and only moderate growth in processing to bio-ethanol. The production increase in cereals is mostly fuelled by projected yield increases in the range of +0.8% per annum which would be accompanied by a slight reduction in cereal areas of -2.4%. The prospects published by DG-AGRI do not cover development for permanent crops and fodder, so that the results for those parts of agriculture are mainly driven by historical trends and, in the case of fodder by their interaction with animal production.

The production of beef is projected to decrease by -2.0% due to increasing beef meat net imports into the EU not compensated by a slightly higher demand. For pig meat, production levels are in the medium term expected to stay rather stable (+1.4%), whereas for poultry meat, production increases in the range of +2.6% are projected, reflecting increasing per capita demand.

2.3.3. Projection of the share of different types of agricultural land use

The situation in **arable crops** is mixed. The implementation of the single payment scheme and the recent reform in the sugar beet market combined with the ongoing

²⁵ This section is a contribution of EU Commission's Joint Research Centre (JRC) (W. Britz from JRC-IES and I. Pérez Domínguez from JRC-IPTS)

²⁶ http://ec.europa.eu/agriculture/publi/caprep/prospects2006b/index_en.htm. These prospects take into account the sugar reform but the suppression of the maize intervention was not yet incorporated and the fruits and vegetables sector is not covered.

²⁷ It is important to note that the biofuels directive has not been directly taken into account in the estimations, being the moderate trends for energy crops a mixture of historical developments and expert knowledge about market developments.

conversion of agricultural areas into artificial land cover lead to area reduction at European level of around -4.8% in arable farming. Sugar beet and potatoes are projected to heavily drop (around -17%), rape areas are expected to expand. Cereal areas are slightly reduced, in parts driven by the reduction of durum wheat areas in the Mediterranean area as a response to the removal of the rather high specific support to durum before the recent reform.

The ***share of permanent crops in Europe is projected to remain rather constant.*** Several factors impact on those results. Recent reforms let the area under vineyards drop in the medium term whereas olive tree areas are still expanding. Albeit EU fruit production is forecasted to slightly increase, increased yields would lead to a fall in orchards area. Unfortunately, data for orchard yields at regional level are missing in Pan-European statistics, so that it is not possible to analyse to what extent the projected changes impact on regions with extensively managed orchards which in some cases are part of High Nature Value Farmland. However, the observed trend from the past of growing orchard yields which is projected to continue may hint at a situation where indeed the projected area loss is concentrated in low-yielding orchards. A similar situation of on-going intensification could be found for olive trees.

Grassland areas in Europe are projected to drop by -6%, somewhat more than the reduction in arable cropping. Besides the general trend of losing agricultural areas due to increased demand for artificial land cover, as indicated above, the beef market is expected to shrink, and projected milk yield increases of +1.6% per annum under the current quota regime should lead to a drop of the dairy cow herd by around - 13.9%. The reduced cattle numbers in combination with the higher milk yields would lead to lower fodder demand from grasslands. The environmental consequences of that development are not clear, as the farming sector could respond with either reducing grassland intensity, which would be beneficial, or by abandoning grassland altogether. The latter is naturally more likely where the current intensity is already low, and abandoning those areas is seen as less favourable, as those extensive farming systems are often found in High Nature Value Farmland areas. There was especially some concern that decoupling beef cattle premiums, especially for suckler cows, may lead to abandonment of those extensive grazing systems. However, most of the countries with larger suckler cow herds (e.g. France and Spain) have opted to keep those premiums coupled to production.

2.3.4. Agricultural labour force

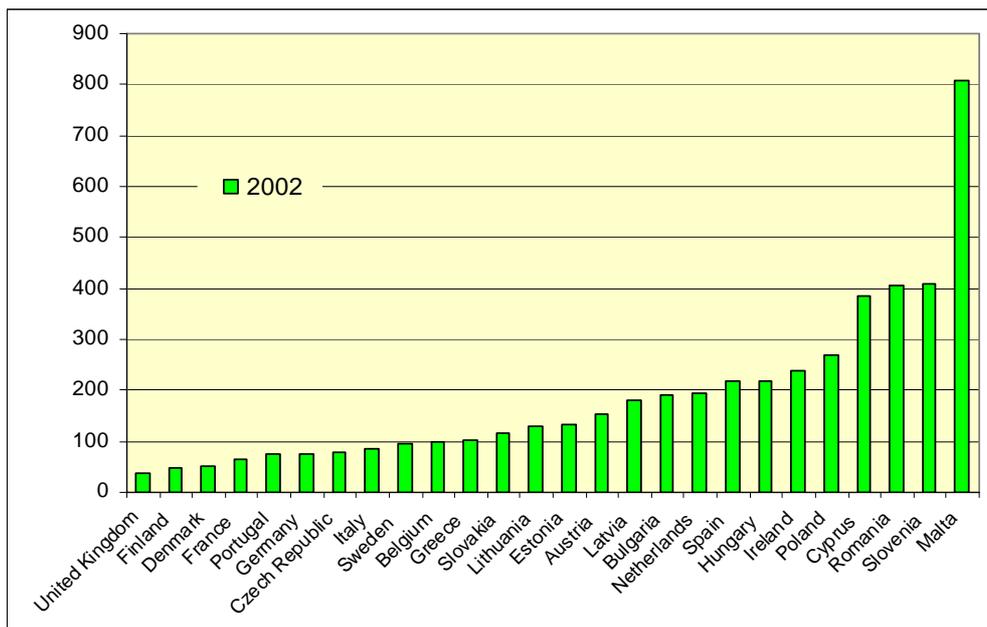
Agricultural labour is a relevant factor to consider in the assessment of rural development policies, and especially complex due to the increasing relevance of mixed on-farm and off-farm work in Europe.

Within the EU, there is a marked difference in farm structures between Northern/Western and Southern/Eastern regions, with the average size of holdings much smaller in the latter (with the exception of remaining collective farming in some NMS such as Slovakia and Czech Republic and Eastern Germany).

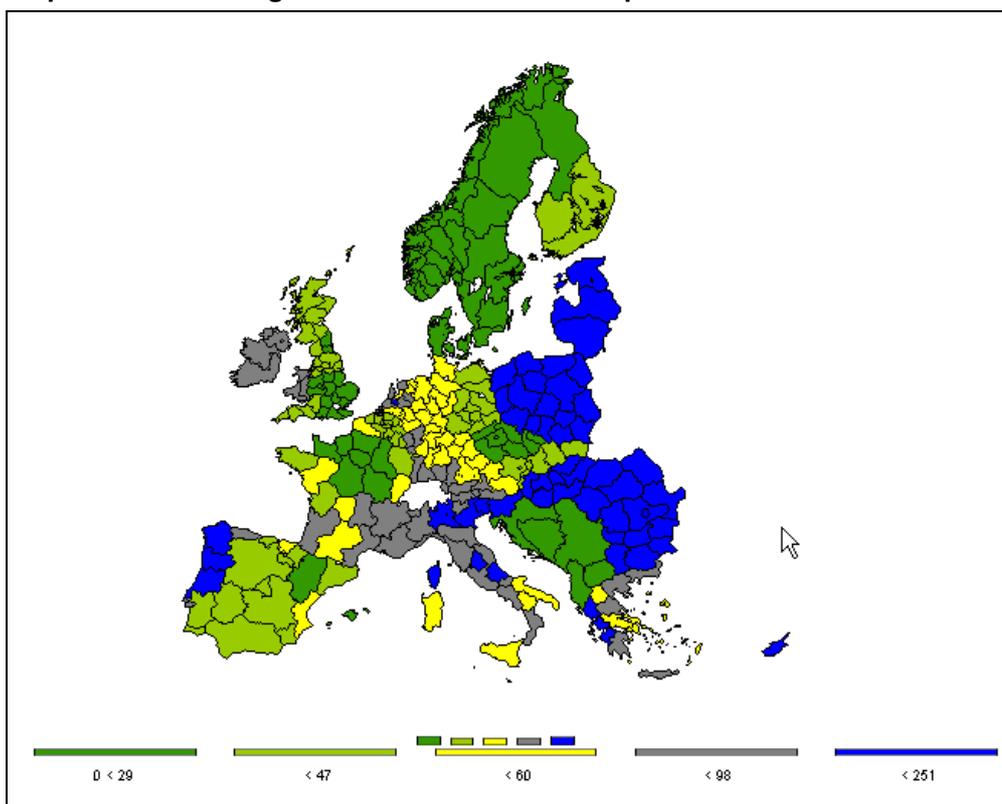
In the baseline **total agricultural labour** lays between 37 hours per hectare (United Kingdom) and 400 (Romania and Slovenia), the 800 hours per hectare observed in Malta being very specific. For cereals, 9 to 42 hours per hectare are evaluated for France, Spain, Denmark, United Kingdom, Czech Republic and Slovak Republic. These regions represent often areas where arable farming is dominant and most efficient. For Italy, Portugal and the rest of New Member States much higher input in labour units is needed for each hectare of cereals, up to over 350 hours per hectare, eventually indicating the existence of hidden unemployment in agriculture. For cattle activities, several regions of Southern England, Germany, and Netherlands show labour input per cow significantly lower than the EU average in the base year, whereas rather high labour input is estimated for dairy production in Northern Portugal, Northern-East Spain (Galicia and Cantabria), Italy, Austria, Hungary and the Baltic States, pointing at some

inefficiency in the cattle sector (small farms, low milk yields and low capital investment) or hidden unemployment.

Graph 2.3.1 Total agricultural labour in hours/ha - 2002



Map 2.3.1 Total agricultural labour for cereal production in hours/ha - 2002

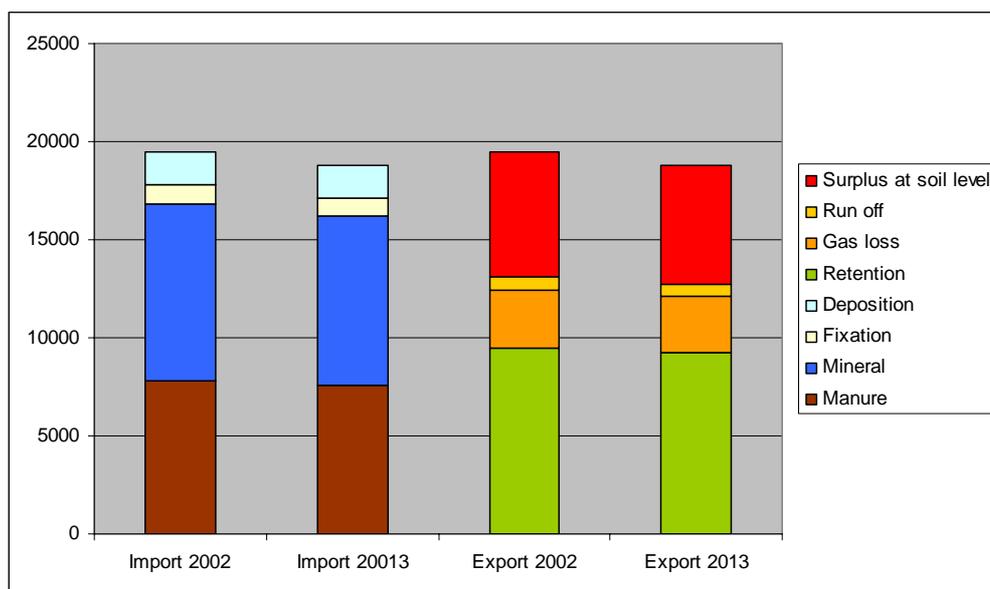


2.3.5. Change in regional nitrogen balances

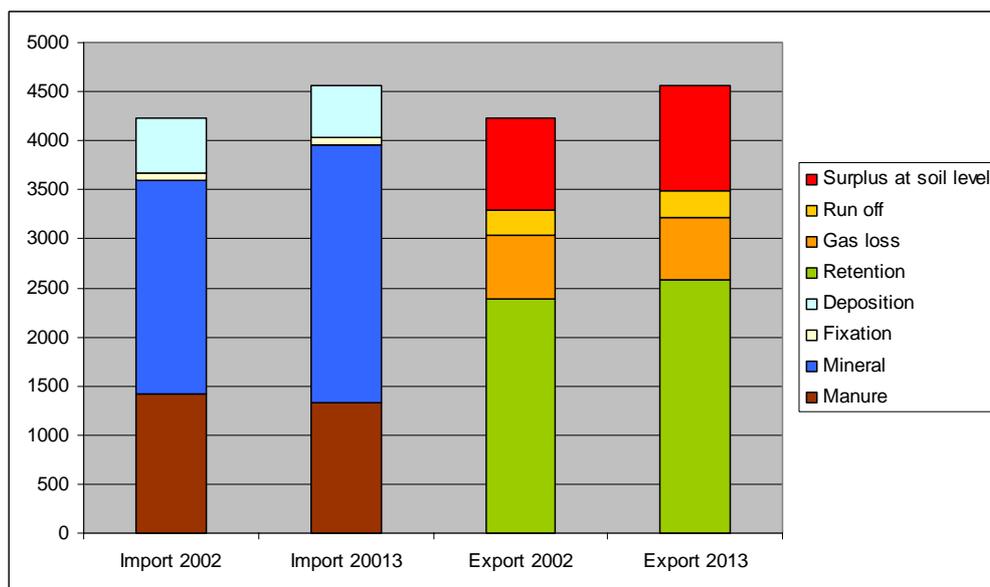
Unlike proposed in the CMEF, CAPRI uses a combination of a soil-surface and farm gate approach to calculate the nutrient balances, to reduce the uncertainty in determining manure excretion coefficients from animals and to have a clear framework

for projection. Manure excretion per animal in CAPRI is defined as the difference between the protein input per animal converted into nitrogen minus the nitrogen exported in the slaughtered animals (meat produced), young animals born (raising activities) or other animal products such as milk. As such, changes in feeding efficiency explicitly or implicitly underlying the market prospects are taken into account and impact on manure excretions. It should be mentioned that the calculation of gaseous nitrogen losses contributing to the formation of global warming gases is fully harmonized with the calculation of the nitrogen balances.

Graph 2.3.2 Nitrogen balance of the EU-15 in 2002 and 2013 (1000 t of Nitrogen)



Graph 2.3.3: Nitrogen balance of the EU-12 in 2002 and 2013 (1000 t of Nitrogen)



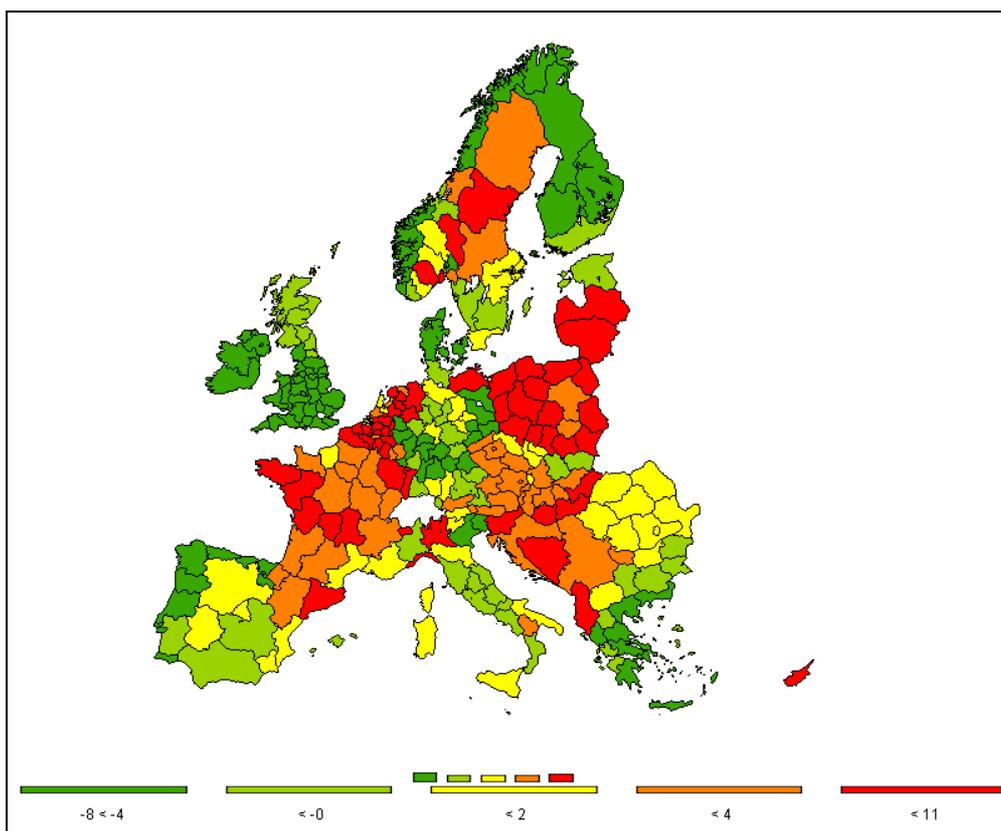
Graphs 2.3.2 and 2.3.3 depict the projected probable development of nitrogen balances at EU-15 and EU-12 (New Member States) level. First, the reader should be aware of the fact that the EU-15 is managing about 145 kg nitrogen per hectare of agricultural land (N/ha) in 2002 compared to 77 kg N/ha in EU-12. The developments and starting positions are therefore rather different. In EU-15, a higher share of nitrogen is provided

by manure; and the total nitrogen in manure is estimated to drop by about -4%, compared to -7% for EU-12. The EU-12 is therefore projected to provide only 30% of its nitrogen in the form of manure. With total nitrogen removed in crops (shown in green) estimated to increase by about 8% in EU-12, mostly driven by yield increases, the use of mineral fertiliser is projected to grow by 21%. The trend to higher yields and nutrient loads should lead to an increase of the surplus at soil level of about 15%.

For the EU-15, the increase of total nitrogen removed with crop yields is projected to stay about stable as only moderate yield changes would broadly compensate shrinking agricultural areas (-3% in EU-15 average). Continuing trend of improved efficiency in nutrient management together with the projected drop in the share of manure let the balance at soil level drop by about -4.5%.

Gas losses from manure during grazing, housing, storage and application from manure are in percentage much higher compared to mineral nitrogen, so that for EU-12 with its low manure share about 40% of the Nitrogen applied by mineral or organic fertilizer or stemming from fixation or deposition is lost, compared to around 50% for EU-15. The same relation is found at soil level, where the EU-15 is losing about 30% of the nitrogen leaching into ground water or accumulated in soils - whereas the E12 is losing solely about 22%. Given that total nitrogen in the balance of the E12 is estimated to be at about 86 kg per ha in 2013, the average loss at soil level is in the range of 20 kg/ha, compared to the projected 47 kg/ha loss for EU-15.

Map 2.3.2: Projected change in gross Nitrogen balance (kg N/ha UAA) in % from 2002 to 2013



Map 2.3.2 indicates that for the vast majority of the regions the change in the surplus is rather small, in a range between 0 and +4 kg/ha. Given the uncertainty underlying e.g. excreting factor of animals and volatilization losses or trends in nutrient management efficiency, that is best interpreted as no-change. It needs to be mentioned that the projected surplus in parts of the Netherlands, Belgium, Germany, Brittany or the Po valley is still at rather high levels.

2.3.6. Change in climate relevant gas emissions

The calculation of greenhouse gas inventories in CAPRI follows as closely as possible the official guidelines of the International Panel on Climate Change (IPCC), and is harmonized with the calculation of the nitrogen balances and ammonia emissions.

Box 2.3.1:

IPCC methodology to measure greenhouse gas emissions

The Intergovernmental Panel on Climate Change of the United Nations (IPCC) has forecasted an increase in global temperature until 2100 within a range of 1.4 °C to 5.8 °C, depending on the simulation scenario used. This short-term effect is mainly due to human activity, natural induced changes not playing an important role. Moreover, global warming is not likely to be equally distributed, the southern parts of the planet facing more severe temperature peaks and also increasing temperature variability within regions and seasons.

Relevant emissions causing the afore-mentioned temperature variations are the so called 'greenhouse gas emissions': carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O) and fluorinated gases (HFCs, PFCs, SF₆). These gases are classified by the IPCC according to their atmospheric lifetime and radioactive forcing, scaling the data to a certain conventional lifetime period (usually 100 years), i.e. the so called 'global warming potential' (GWP). Emissions are then expressed in relative terms, with CO₂ units as the reference gas. By using this approach, emissions can be compared and homogeneously aggregated.

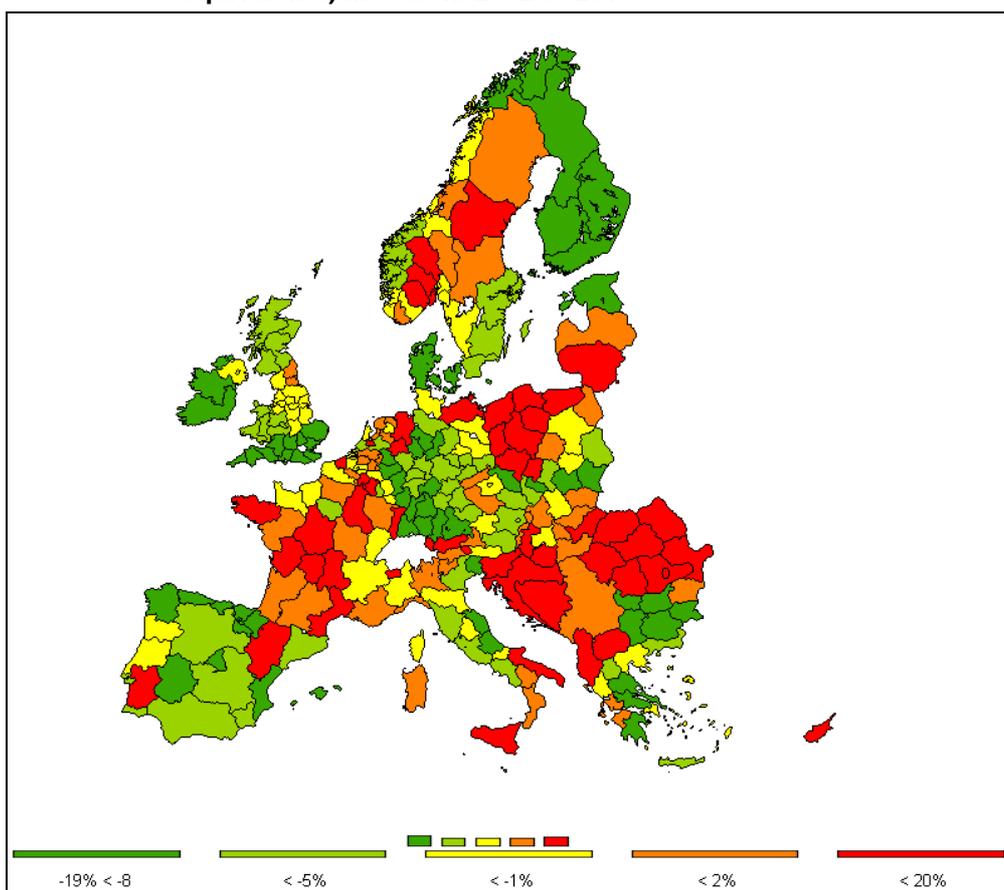
Main drivers

The main drivers of climate relevant emissions in agriculture at European scale are methane emissions from ruminants with a CO₂ equivalent of 21, and emissions of N₂O linked to manure and the nitrogen nutrient cycle in crop production with a CO₂ equivalent of 310. The latter value would mean that emitting 1 ton of N₂O has the same expected impact on the climate change over 100 years as emitting 310 tons of CO₂. A high yielding dairy cow will contribute to the warming of the Earth with about 6 tons of CO₂ equivalents per year, of which two third stem from CH₄ and one third from N₂O emitted from manure. A dairy cow emits per year hence the equivalence of about 45.000 km driven in a car emitting 130 grams of CO₂ per km, the envisaged average CO₂ emission. A hectare of soft wheat with a yield around 7.5 tonnes will emit in average about 1 tonne of CO₂ equivalent, linked to emissions of about 3 kg/ha of N₂O. The amount emitted depends however on soil type and management practise, and may go up to about 5 kg/ha.

The pressures from ruminants in the EU on global warming are expected to decrease as methane emissions drop by -5% as cattle herd shrink. The reduction in animal numbers is in parts driven by market factors, especially the stagnating beef meat demand, and in parts by technical progress as feed efficiency and milk yields are increasing. The higher milk yields reduce the overall cattle herd, especially by decreasing the replacement herd size for fattening cattle activities which further helps to abate methane. Moreover, the methane emissions from pigs for fattening and sows, the other high emitters of this gas in agriculture, are also projected to decrease.

The pressures linked to N₂O emissions from agricultural soils are stable thanks to reduced manure output from animals. At European level, pressures on climate change from agriculture should slightly decline by -3.0% (-4.2 for the EU-15 and +3.6 for the EU-12) despite the fact that total protein output of agriculture is increasing. As almost all of agricultural products in Europe meet demand at market prices, and are not longer exported with subsidies or put into public storage, the almost constant pressures on climate change from European agriculture reflect increased global food need driven by the combination of global population and GDP growth, including the feed protein needs coupled to them.

Map 2.3.3: Projected change in Global Warming Emissions (CO₂ equivalents) in % from 2002 to 2013



2.3.7. Change in Ammonia gas emissions

Box 2.3.2:

Ammonia

Ammonia is a gas contributing to acid rain and, when emitted in high concentration, also directly harmful to human beings and wildlife. Ammonia emissions could be reduced during the last years in the non-agricultural sectors thanks to the implementation of environmental standards. Development of abatement strategies for agriculture is far more demanding, since ammonia is emitted during biological and soil processes linked to the nitrogen cycle in agriculture. High volatilization losses of ammonia occur from animal manure where typically about 40% of the nitrogen found originally in the excretions is lost as ammonia. In order to make nitrogen plant available, it must be water soluble, and depending on soil conditions, that nitrogen can also be converted into ammonia and lost, so that ammonia volatilization is also coupled to the use of mineral fertilizer or funnelled by biological fixation by leguminous plants. Nitrogen not lost as ammonia may hence contribute to plant growth; unfortunately, it may also leach into the groundwater, run-off to surface water or been lost as N₂O, which is one of the most harmful gases contributing to global warming. The change in ammonia emissions and abatement options should hence be analyzed in close relation with the development of the nitrogen balance and global warming emissions.

At European level, ammonia output will experience a very moderate decrease (-1.5%), a combination of the drivers already discussed above for the gross nutrient balance for nitrogen: more or less stable output of manure combined with better manure management and increased use of mineral fertilizers, driven by yield increases for crops. Indeed, in the old Member States, ammonia output is projected to drop by about -2.1%, where slight increases in the New Member States are foreseen (+0.6%), partially as fertilizer practises return to sustainable levels where soils had been before depleted from Nitrogen (e.g. +6.5% in Hungary). Higher decreases are found where recent

reforms are assumed to reduce cattle herds, as e.g. in Germany, or where dairy cows are a major source of manure in the base year. In the latter case, higher milk yields lead to above discussed reduction in cattle herd sizes, helping to abate Ammonia.

Map 2.3.4 Projected change in Ammonia Emissions (t) in % from 2002 to 2013

