ESPON project 3.2
Spatial Scenarios and Orientations in relation to the ESDP and Cohesion Policy

Final Report
October 2006

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Volume 3
Final Thematic Bases and Scenarios

This report does not necessarily reflect the opinion of the members of the Monitoring Committee.

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Figures and Tables

1. Introduction

This volume presents the the thematic knowledge bases and scenarios. They are of particular use to those who are looking for an overview of the current state of knowledge in a specific field or those who would like some inspiration concerning possible spatial impacts of sectoral policy options or particular evolutions of exogenous driving forces.

These thematic scenarios were used as the basis for the elaboration of the integrated scenarios presented in volume 2, but they stand on their own and can be used individually for the debates in the respective subjects.

The knowledge basis represent an overview of the current state of knowledge in the covered field, including current trends and situations, basic future forecasts, the existing policies, and, most importantly, the main driving forces that influence the developments in each thematic field.

The scenarios are prospective policy options, generally testing opposing policy choices. Depending on the themes, they are somewhat caricatural pushing the debate to the extremes with the aim of raising awareness and serving a pedagogical purpose. They are meant as provocations to stimulate thinking and debate on the issues raised.

The themes covered by these scenarios are the following: demography, transport, energy, economy, governance, enlargement, rural development, climate change and socio-cultural evolutions. Even though this is obviously not an exhaustive list of those elements influencing territorial development, it does cover the major issues at hand today.

2. Thematic scenario 'Demography and migration'

Michelle Wishardt, Ian Strange, Simin Davoudi (CUDEM)
and Martin Schuler (ETH Zürich)

2.1 Scenario base – Demography

2.1.1 Present situation, trends and forecasts

2.1.1.1 Current EU population trends in their global context

The number of inhabitants of the EU25, stood at 454.9 million at the beginning of 2004, a population which, in spite of healthy immigration rates, is becoming, in parts, virtually stationary. This situation has been referred to as 'zero population growth' and contrasts significantly with the picture across most of the rest of the world where the population continues to increase sharply[1] (see Table 1 in the Appendix below). The contrast is brought into sharpest relief by looking at the situation in the Asian and African countries bordering the EU, such as Syria, Libya and Algeria, where trends indicate substantial demographic gains. As these countries are the main source of the rise in migration to the EU, the disparity is clearly significant.

This so-called 'second demographic transition' in Europe, has been brought about by three decades of low fertility rates, producing shrinking cohorts of young people, in themselves generating a 'negative momentum'. Consequently across Europe as a whole, there are more deaths than births, producing by 1995 a natural decrease of 1 per 1000 (crude birth rate 10 per 1000, crude death rate 11 per 1000[2]). This correlation has been modified, in that while the birth rate has plummeted, a long-term rise in longevity has suppressed the mortality rate producing an ageing population.

Migration is much more important numerically than either births or deaths, indeed a rise in international immigration to Europe has been fundamental to maintaining the size of the EU. This situation has been supplemented by unregistered immigration, with at least three million 'illegal immigrants' living in the EU15 in 2003, according to European Commission estimates.

2.1.1.2 Territorial differentiation across the EU

Territorial variation across Europe is reflected in recent figures showing the average annual

[1] Over the past ½ century the world's population has been growing faster than ever before and according to UN projections – and hopes – faster than it will in the future (the annual average increment peaking at 87 million between 1985 and 1990). Between 1950 and 2003 89% of the increase in global population has taken place in Less Developed Countries, raising their share of the world's population to 81% in 2003. Asia has contributed nearly 2/3 of this increase, thus increasing its share from 56% to 61%. Africa has been the second largest contributor, with the highest growth rate – an increase of 285% over the 1950 level (compared to 156% for Asia and 33% for Europe).

[2] This contrasts with an average crude birth rate of 26 and death rate of 7 in North Africa and even more tipped in favour of youth in Western Asia, peaking at 45 and 9 in Yemen. In Turkey the crude birth rate is currently 21 and crude death rate is 6; their accession will clearly alter the overall age profile in the EU.

rate of population change. This averaged, between 2000 and 2005 at 0.0-0.1% for most of the EU, but 1.1-1.9% in Ireland and at the other extreme -0.4-0.1% in Italy and most of the countries of Central and Eastern Europe and more than -<0.5% across the Russian Federation. Demographic patterns at the meso level can be said to fall into three main patterns:

- continued moderate population growth; early decline in birth rates followed by stabilisation such that the number of births is still slightly higher than the number of deaths (France, The Netherlands and Ireland)
- early zero growth; early decline without stabilisations or negative growth rates leading to a reaction and a 'rebound of birth rates' (Austria, Denmark, Sweden and the UK)
- late zero growth; late, but sharp decline in birth rates, zero or negative growth since the mid to late 1980s (Southern Europe) and from early 1990s (Central and East European countries)

However, these national averages mask significant micro differences (centre/periphery e.g. France and the UK or North/South e.g. Italy or East/West e.g. Germany). ESPON 1.1.4 focused its findings on differences at this level (see below). However in spite of differences in the rate of change and the factors believed to be behind them, mortality and fertility trends across Europe can, in general, be seen to be converging. The decline in fertility has been most recent in Southern Europe, now showing the lowest figures of an average of 1.3 children per woman, and most striking in Eastern European countries[3].

The convergence in mortality rates has largely been the result of countries such as Portugal improving their life expectancy rates (by 14 years between the 1950s and the 1990s) compared to countries such as Denmark which made smaller gains. However, in Eastern Europe mortality rates continue to be notably higher and have actually increased.

Despite the evident convergence in natural population decline (which could also be perceived as stability or stagnation depending on perspective) across the EU, persistent though minor, variation in actual decline can be seen as Table 2 of the Appendix below.

The convergence is less evident in migration which is impacting on regions and countries quite differently. The most obvious feature has been the change in the larger Southern member states, which instead of being net exporters of people to north-west Europe and the 'New World' (as they were until the mid 1970s), have become net immigration countries, mainly as a result of large inflows of migrants from Africa and Asia[4]. With respect to immigration from Eastern Europe, Germany has been the main recipient. In the accommodation of asylum seekers, Austria and Sweden have been significant, relative to their population size, but less notable in gross terms.

Regional movements in population have been characterised variously as centre/periphery, East/West and by 'region type'. The main developments in the former two models have been a move from the peripheral areas to central economically strong zones, which have left areas of de-population and movement generally of younger workers from East to West. 'Region types' were established by the research of ESPON project 1.1.4 and they are

[3] The total fertility rate (estimate of the number of children a woman will bear throughout her child-bearing years) averages between 1.6 and 2.1 in France, the UK, the Netherlands, Ireland and now parts of Scandinavia, but lies between 0.0 and 1.5 for the rest of the EU and the Russian Federation. Higher rates in France and Scandinavia have been explained by some demographers to reflect generous national pro-natalist policies, in Scandinavia and the UK to reflect the high extra-marital birth-rate and in Ireland to be largely a reflection of a much higher than EU average cohort of young people due to previously higher fertility rates than existed across the rest of the EU. Nonetheless despite these deviations the general European trend in birth-rates is downward.

[4] In 1990, of the (registered) 13 million foreigners living in the then EU-12, 8 million were from outside Europe, with nearly half from North Africa or Turkey.

presented as 6 categories, based on factors including a mixture of migration and natural population change (as Table 3 in the Appendix).

2.1.1.3 Demographic trends in historical context

The key demographic trends in Europe then, with regard to natural population change are falling birth rates and mortality rates producing increasing life expectancy. Migration trends are more complex. There has been a reduction in long-distance inter-European migration, but a continued high level of short-distance movements within Europe. These movements are producing de-population in certain areas. Similarly migration to Europe from outside the EU continues to reflect high potential and demand. Migration from non-EU countries to the EU is lower than had been predicted by some in the Seventies and Eighties, but shows clear East to West flows.

Current trends show a distinct departure from long-term trends. From the beginning of the nineteenth century demographic trends (described as the 'first demographic transition') were marked by rising population, as still apparent in most of the rest of the world (see table 1 in Appendix). But the end of the 1960s marked the beginning of a sharp downward trend, the 'second demographic transition' with the total fertility rate falling below replacement rate by 1975 (at least 2.1 needed to give a constant population in the long-term). Since then birth rates have continued to decrease, and by 1990-95 they stood at 1.5 births per woman (see Table 4 in the Appendix below), compared with an average of 5.1 in the least developed regions of the world and 3.2 and 3.4 respectively, in neighbouring North African and Western Asian states.

The increase in longevity has been a continuous feature of recent European history rather than the more recent and rapid fall in fertility[5], though arguably there is further scope for improvement particularly as the male/female differences in life expectancy have persisted. Nonetheless, on average life expectancy at birth has risen from 67 years in 1950-1955 to 76.5 years in 1990-1995. Consequently, the proportion of 65+ rose from 9.5% in 1950 to 15.5% in 1995 and the potential support ratio (no. of people aged 15-64 for each person 65+) fell in the same period from 7 to 4.3.

With respect to 'external' factors impacting on population, the nature of migration has changed over the past half century. Three distinct 'waves' can be identified; firstly the post-war 'guest-worker' phenomena, then family reunification and now the emergence of a 'post-industrial' pattern of migration. This comprises three elements: high-skill labour migration, clandestine movement (through illegal entry or after the expiry of a short-term student, tourist or work visa) and asylum seeking. Numerically, and in terms of visibility, the latter two categories are more significant.

In terms of migration between regions there has been a major change. In the years immediately following the end of World War Two intra-regional population movements in Europe were still dominated by rural to urban migration. By the 1970s counter-urbanisation, or other forms of 'de-concentration' became more pronounced in many areas and looked set to continue, at least for the increasing proportion of people who were retired, on higher incomes, or flexible and home-workers able to live away from their place of work. However despite this new tendency for people to 'locate themselves down the urban hierarchy' some European peripheries are seriously affected by population decline due mainly to a negative migration balance.

[5] Infant mortality rates have also fallen, most markedly over the past fifty years; since the early 1950s in the 12 pre-1995 EU countries it has been falling by around 5% a year on average; from 49 per 1000 live births to 8 at the end of the 1980s

2.1.1.4 Projections of future population developments

The Population Reference Bureau (PRB) calculated that between 1996 and 2010 Europe's population would be maintained, largely as a result of declining mortality and migration by 2.3%, but would fall between 2010 and 2025, assuming a continuation of current trends by –0.3%. This compares with an average across the rest of the 'developed world' of 10% (1996-2010) and 8% (2010-2025), and for less developed countries of 25% (1996-2010) and 21% (2010-2025). The consequences of such projections are a continuation of the declining European element of the global population. The PRB predicts that by 2025 Europeans will account for one in 16 of the world's population, down from one in 6 in 1950 (UN forecasts of the situation of Europe in global context at 2050, based on trends between 2000 and 2005 are shown in Table 1, Appendix).

Excluding the migration factor, the most interesting dynamic to many socio-economic policy makers and planners is the ratio of young to older persons. Already the proportion of older people is higher than the proportion of the young (under 15) in several European countries, including Bulgaria, Germany, Greece, Italy, Portugal and Spain. The average percentage of persons over 65 in the EU-15 was 24.1% in 2000, (an average of 25 often suggested as an 'unacceptable' rate in purely economic terms). Eurostat predicts that the figure will reach at least 30% by 2015 and more than 40% by 2030 (a break-down of the forecasts by country are provided in Table 5 of the Appendix). However dependency ratios are culture specific, in terms of the ages at which people are expected to work, and not absolute. They could therefore be altered, at both ends of the age spectrum, by innovative labour market policies. Nonetheless there are policy implications impacting all aspects of life, most obviously health, housing, transport and health care.

2.1.2 EU policies relating to demography and migration

Explicit population policies are currently notable by their absence in most EU member states and clearly at the EU level, where there is no clear competence in this policy sphere. Obviously other policy spheres influence demographic trends: labour market and family policies in the case of fertility and the consequences of an ageing population and social and economic policies broadly to deal with migration. In all these cases it is easier to see the policy implications than to make policy recommendations, which is reflected in the lack of clear policy direction at the EU level[6].

2.1.2.1 EU policies relating to fertility

In the case of 'natural population development' the EU may be said to have adopted mild, non-explicit pro-natalist policies in the form of minimum standards in the field of parental leave[7] (though no agreement on any form of minimum income during parental leave) and a (non-binding) recommendation on child-care service provision.[8] Despite official statements from the Commission that measures must be promoted to 'reconcile work and family life' and assertions that these measures have 'opened the path toward the establishment of a minimum EU pattern of intervention in family policies' (Rossili, 2000), attempts to establish a unified European social policy have been beset with difficulties and resisted by member states, in particular the UK. Consequently the EU is still left with a 'status quo of (fragile)

[6] The Green Paper 'Confronting demographic change: a new solidarity between the generations' COMMISSION OF THE EUROPEAN COMMUNITIES, Brussels, 16.3.2005 COM(2005) 94 final, may be an indication of an attempt to change this.

[7] Council Directive 96/34/EC of 3 June 1996 on the framework agreement on parental leave concluded by UNICE, CEEP and the ETUC. OJ L 145, 19.6.1996.

[8] Council Recommendation 92/241/EEC of 31 March 1992 on childcare. OJ L 123/16, 8.5.1992.

welfare state sovereignty and autonomy in member states producing a variable geometry' in the spheres of social and family policy described (Leibfried, 1994). As a result there has been substantial variation in the generosity, or not, of tax incentives to encourage child-bearing, higher child benefit payments for second, third and subsequent children and subsidised child care provision for working parents. This has at least produced a situation allowing demographers to debate the relative impacts on fertility of different policies.

There are also differing attitudes across the EU in general to female labour force participation, although in this sphere there is a greater degree of EU social regulation[9]. Ironically improving the labour market opportunities for women has been widely cited as one of the driving forces behind falling fertility rates. However there are two possible explanations for this. Firstly, positive action has been directed at redressing the imbalance of women's opportunities in the labour market, rather than at redistributing results (jobs or careers), as occurred with American affirmative action that set quotas and discriminated in favour of women at the point of selection. Interestingly in the USA birth rates have not been declining in the way that they have in Europe. Secondly, this 'liberalism' in EU policy has become apparent in the growing de-regulation in female employment, so that in spite of directives on the protection of part-time and fixed-term workers which have attempted to cut out the more explicit forms of discrimination and abuse (such as that arising from the use of successive fixed-term employment contracts). The persistence of resultant forms of work insecurity may not be conducive to encouraging fertility. Stratigaki (2004) has argued that concepts initially introduced to encourage gender equality in the labour market and the 'reconciliation of working and family life', have gradually shifted in meaning from an objective with the potential of 'sharing family responsibilities between women and men' to a market-oriented objective ('encouraging flexible forms of employment') as it became incorporated in the European Employment Strategy of the 1990s. The current Lisbon Agenda objective of increasing women's participation in the labour market to more than 60% for 2010 would seem to uphold this view, if the EU is concerned about the long-term implications of the fall in the birth-rate, it has not, as yet, produced any explicit or unified policy to address the issue.

2.1.2.2 EU policies relating to longevity and ageing

In the field of ageing there has been more guidance from the European Commission, though still it is in its early stages and, as yet, is non-binding. Recent proposals from the Employment and Social Affairs Commission now stress a 'life cycle approach' to maintaining the EU's competitiveness in order to realise the Lisbon Strategy (op de Beke, 2004)[10]. This follows the revision of the employment strategy in 2003. The dual approach to the issue of the ageing population is to extend the working life and promote health into later life to support this. It is proposed that retirement age should be increased by an average of five years and that the participation of older workers is encouraged in a general sense by restructuring work to be more accommodating to the needs of older workers. The gender dimension of ageing has also been discussed by the Commission. At present the lack of

[9] Article 141(1) of the EC Treaty sets out the principle of equal pay for male and female workers for equal work or work of equal value, and Article 141(3) provides the legal base for EU legislation on equal pay. Directive 75/117 was adopted to implement the principle of equal pay. Furthermore, benefits paid in the context of occupational social security schemes also constitute pay within the meaning of Article 141, and Directives 86/378 and 96/97 implement the principle of equal pay in this area. Article 141(3) of the EC Treaty provides the legal base for EU legislation on equal treatment of men and women in matters of employment and occupation. The main piece of legislation which has been adopted in this field is Directive 76/207, recently amended by Directive 2002/73, which Member States are required to transpose in national legislation by October 2005. This legislation implements the principle of equal treatment as regards access to employment, self-employment and occupation, including working conditions, and vocational training.

[10] Op de Beke Op de Beke, J. (2004) 'The Life Cycle dimension of time use in EU social and employment policies', DG Employment and Social Affairs Commission, 9-10 September, 2004.

harmonisation of child support is mirrored by a similar lack of unified policy relating to support for the elderly, including support for carers, this has resulted in a wide range of standards of provision, particularly for the frail and very old.

2.1.2.3 Migration policies

With respect to migration within the EU, the meso level, Article 51 of the Single European Act 1987 requires the 'free movement of workers and social security for migrant workers'. Clearly central to the single market ideal is the notion of free movement and thus any sub-regional imbalances consequent to this free movement can only be mitigated after the event, through the operation of Structural Funds and other specific initiatives. The lack of a unified social policy clearly has implications for internal migration across the EU, indeed it has been suggested that the lack of a harmonised form of EU social provision, in the form of a European-wide minimum safety net has increased the incidence, or at least the threat of welfare tourism and (unregulated) migration'.

Policies at the macro EU level are generally restricted to limiting the number of immigrants from outside the EU, policies which have resulted in allegations of a 'Fortress Europe' mentality. While discussions about the role of immigration in replacing falling populations have been the subject of much debate they have not resulted in formal policy initiatives specifying the type of migrants or final destination preferred. With regard to destination, 'European immigration needs' are significantly more urgent in the new member states than in the EU-15.

ESPON Project 1.1.4 argued that there was a need to reduce the gap in living standard and income levels in order to create a polycentric development on EU29-level. For example: 'the gap between the new EU members and the old ones are much more pronounced than the gap within the various countries. Temporary rules and regulations are perhaps in some cases necessary in order to hamper a short term large drain from east to west – the fear of mass migration are probably overvalued - but this is not a solution in the long run. Instead, a policy that stimulates symmetrical migratory movements should be … prioritised on the political and social agenda.' It warns though that 'Immigration can only offer a short-term solution to the consequences of ageing. Long-term solutions, such as higher labour force participation rates or a higher retirement age, stimulate an increased fertility rate and improve the labour productivity, which is necessary to deal with the consequences of ageing.' Also required are policies specific to areas of depopulation.

2.1.3 Main driving forces

Reasons for the decline in fertility and mortality relate mainly to health and lifestyle factors. In the case of fertility economic and employment factors are also important. With regard to migration there are push factors and pull factors accounting for the varying attraction of different member states. These clearly are complex and studies show that there are a lot of country specific factors that explain migration trends.

2.1.3.1 Reductions in the fertility rate

The decline in the birth rate is associated with:

- cultural factors; a shift in partnership arrangements - reduced permanency of marital

relationships, lower number of marriages, unstable marriages, increase in divorce (children of single or divorced mothers less likely to have siblings) 'serial monogamy', rise in cohabitation. Also an increase in the mean age of women at first marriage and at production of first child, leading to less children produced in total;
- economic factors; including consumerism, competitive conditions, cyclical recession and unstable employment and an increase in the proportion of working women[11] - all creating pressures leading to postponement (the tempo effect, in turn leading to the 'quantum effect' i.e. producing less children in total), or the decision not to start families;
- social factors; the decline in collective, familial or community values, media and cultural stress on individualism (fulfilment, mobility, living arrangements etc.), social/health changes, - increased availability and acceptability of new forms of contraception, easier access and a rise in societal and medical acceptance of termination (abortion).

In relation to regional differences, in Eastern Europe – post-communist forms of economic insecurity has been correlated with a sharp fall in birth rates, while in Southern Europe very low non-marital child bearing is one of the key factors reducing overall fertility. However, in Scandinavian countries policies to make motherhood and labour market participation more compatible are widely perceived to have led to partial recovery of rates, as they have in France.

2.1.3.2 Increasing life expectancy

Reductions in the mortality rate have been linked primarily to improvements in health care, access to health care and advances in medical treatment and lifestyle factors, such as good work conditions and diet.

Regionally variable factors impacting mortality rates are arguably 'the Mediterranean diet' in countries which have reduced cardiovascular mortality, and conversely the deterioration of social protection systems in Eastern Europe which can be correlated with an increase in mortality rates.

2.1.3.3 Migration

Changes in migration at the international level have been linked to: higher education opportunities, links between donor countries and some EU countries and other country specific factors, previous migration leading to family re-unification; and most importantly the persistent gulf in living standards and opportunities (especially employment) between EU and 'sending' countries.

At the intra-European meso level: key factors include; a steep rise in car ownership, advances in Information Technology allowing home-working; cohabitation, divorce and remarriage leading to more frequent residential mobility; economic pressures to move away from expensive urban centres; families with children moving further away from city cores as commuting becomes easier; greater variety of lifestyles; selective increase in freedom to move to 'sunbelt' zones and more attractive areas; increased work flexibility and decentralisation - post-industrialisation and economic re-structuring, post-materialism - quality of life considerations in moves out of congested and deteriorating zones, retirement migration, portable pensions and a rise in home ownership allowing more freedom in intra-regional/urban to rural migration and young people leaving home, not to marry but to pursue extended education or employment away from home communities.

[11] This point has been widely debated (see 1.1.2.1). The European Population Committee of the Council of Europe has contended that it is security of employment that pre-empts low fertility rates: precarious employment and unemployment are being correlated with decisions not to have children.

What is significant about territorial differentiation in international migration is that reasons for emigration to established EU countries are gender and age specific within each of the 'donor countries'. This is vital in demographic terms in that if the gender/age balance of immigrants is different to that of the host country there will be demographic changes to the host country, as well as the 'donor' country. Clearly this could be highly significant in light of the ageing issue in European countries. Certain countries face the prospect both of a major 'youth drain' (Bulgaria and Romania, may experience an outflow of nearly 10% of the youngest age group in the next five years) and a 'brain drain' losing a substantial proportion of persons with third level education. The additional factor, not reviewed here, will be future differences or harmonisation of EU member states immigration policies.

Only a complete country review of migration could cover all relevant factors, but examples include: family motives (Cyprus, Malta); higher education (Central European countries, especially for young women); short-term financial motivation (Bulgaria, Romania); and unemployment (Turkey, Bulgaria and Estonia).

2.1.4 Identification of scenario hypotheses

The 'second demographic transition' apparent in Europe has been negatively presented by those concerned by the consequent ageing of the population and the growing contrasts with the rest of the world in terms of their age components. Thus, though global demographers (largely concerned with containing the global population 'explosion') see reductions in the fertility rate as the key to a successful stabilisation of population and development economists describe a phase of falling death rates followed by a phase of falling birth rates as a key indicator of human development levels (UNDP), many within the EU have expressed concern at the relative shrinking of their share of the world's population and the shifting age dynamics within it. While less developed regions continue to retain the triangular shape of a traditional 'age pyramid' with a broad base caused by above replacement rate fertility producing ever larger generations of potential parents, the EU and Eastern Europe, together with some other more developed regions – such as Japan – are increasingly characterised by a contracting base of young people leading to a rapid ageing of their population over and above the effects of increasing longevity. The apprehension, expressed by some, is that this situation is predicted to become even more top-heavy over the next half century, with Europe's proportion of persons over the age of 60 rising from 1/5 to between a 1/4 and a 1/3 by 2030. The possible consequences of this are the focus of the first scenario 'Silver Century' with a focus on the possible impacts on the 'European social model' of welfare provision, on the form social spending may take. Likely intra-European movements of different age and social sectors within the EU, based on existing trends, will also be considered and the subsequent implications for population distribution.

The second scenario 'Open Borders' will focus more explicitly on the migration issue and in particular the probable consequences, of the introduction by the EU of an explicit policy to encourage immigration to address the issues of ageing as set out above.

2.1.5 Information sources

European Foundation for the Improvement of Living and Working Conditions

The European Observatory on Demography

ESPON 1.1.4 Project - The Spatial Effects of Demographic Trends and Migration

Eurostat

International Office of Migration

Organisation for Economic Co-operation and Development Statistics Directorate

Population Division, United Nations

Population Reference Bureau

The European Population Committee (CAHP), Council of Europe

United Nations Economic Commission for Europe (UNECE) Population Forum

World Bank Population Projections: short and long-term estimates

2.1.6 Appendix: tables and graphs

	1900	1950	2003	2500 (UN projected)
World	1650	2519	6301	8919
Asia	947	1398	3823	5222
Europe	408	547	726	632
North America	82	172	326	448
Africa	133	221	851	1803

Source: UNECE Population Forum, 2003

Table 1 World population growth (millions)

	Population 2003 (mill)	Growth (%)	Infant mortality$	TFR~	Life Expectancy	% 2000	60+ 2050
World	6301	1.2	56	2.7	65	10	21
Asia	3823	1.3	53	2.6#	67	9	23
Europe	726	-0.1	9	1.4	74	20	35
N America	326	1	7	2.1	77	16	26
Africa	851	2.2	89	4.9	49	5	10

Source: UNECE Population Forum, 2003

Table 2 Key population statistics by region (millions): annual averages 2000-2005*

*Except for population (2003)
$ Per 1000 live births
~ Total fertility rate
# Rate averaged down due to the 'China effect' (one child policy)

	AT	BE	DK	FI	FR	DE	EL	IE	IT	LU	NL	PT	ES	SE	UK
2000	0.01	0.4(e)	0.13	0.15	0.42	-0.09	-0.02	0.67	-0.03	0.45	0.42	0.14	0.10	-0.03	0.11

By 2003 the decline in Italy and Germany had accelerated. Of the 10 new member states all have negative rates, except for Malta and Cyprus. The rates in Eastern Europe are also now almost all in absolute decline, the sharpest fall being seen in Bulgaria. These figures may also be measured annually by '000 inhabitants, see below.

Source: T1.3 Europe-wide comparative review, Council of Europe, 2004

Table 3 Current rate of 'natural population increase' (excess of births over deaths in the indigenous population in % – EU15 (average 2000, 1.8)

	AT	BE	DE	ES	IT	UK	BG	EE	LT	MT	PL	RO	SI
Natural	0.0	0.6	-1.8	1.7	-0.8	1.4	-5.9	-3.7	-3.0	1.8	-0.2	-2.6	-1.0
Total	3.1	3.9	0.1	7.2	2.8	3.2	-5.9	-3.8	-4.5	5.7	-0.6	-2.6	0.8

Half of the new member states were showing a total fall in population by 2003, but in the case of the Czech Republic, Slovakia and Slovenia immigration was preventing an overall decline.

Source: Eurostat European population trends, 04/6

Table 4 Natural population increase: Total population increase (by '000 inhabitants – selection of EU29 (average 2003, 0.8: 3.4)

1 In-migration and young population/'high' TFR
2 In-migration but low fertility rate
3 Out-migration but young population/'high' TFR
4 Out-migration and old population/'low' TFR, depopulation
5 In-migration and old population/'low' TFR
6 Out-migration but still young population/'high' TFR

PT=Total population development, PM=Net migration, PN=Natural population development, TFR=Total Fertility rate

Source: ESPON 1.1.4 Final Interim Report

Table 5 Demographic Typology of Regions

	AT	BE	DK	FI	FR	DE	EL	IE	IT	LU	NL	PT	ES	SE	UK	CZ+	SK+	SI+
1960	2.7	2.6	2.6	2.7	2.7	2.4	2.2	3.8	2.4	2.4	3.1	3.2	2.9	2.2	2.7			
2001 +2003	1.3	1.5	1.7	1.7	1.9	1.4	1.3	1.97	1.2	1.6	1.7	1.46	1.26	1.57	1.6	1.17	1.2	1.22

Source: T3.3 Europe-wide comparative review, Council of Europe, 2004

Table 6 Total Fertility Rate – EU15 (average 1960: 2.7, 2001: 1.4)

Year at which working age population is expected to stop growing/start declining	
-2000	IT, DE, LV, BG, RO
2004	HU
2006	LT, EE
2007	CZ
2008	DK, PT
2010	FI, EL, ES, SK
2011	SI, NL, BE, UK, FR, PL (average EU15, EU25)
2012	AT
2035	IE
2042	MT
2044	CY
2050+	SW, LU

Source: Eurostat 2004 Demographic Projection (Baseline Scenario), 2004

Table 7 Ageing Patterns – EU25

2.2 Scenarios

2.2.1 Scenario 1: Silver Century

2.2.1.1 Hypothesis underlying the scenario

This hypothesis is based on the continuation of current trends, both in terms of demographic evolutions and in terms of policy. The question asked by the scenario is thus: should current demographic, migration and labour market trends continue unchecked, how will Europe look in 2030?

The European population will continue to age and immigration will be very limited and controlled. The shrinking workforce will have to work longer hours and pay higher taxes to support the rising costs of health care and pensions for the growing number of older people. The fiscal demands of this 'ageing Europe' place tremendous stress on the 'European social model' of welfare provision which is based on a choice made to accept lower economic growth in return for more social protection and leisure time. The social model may be modified to meet the needs of older people, which will not help redress the continued falling birth-rate. Older people will move in increasing numbers to rural areas and from North and West to Southern 'retirement destination' areas, where they use their 'grey' voting power to shift public spending away from nurseries, schools and playgrounds towards health care and retirement homes. Core-periphery and the east-west demographic polarisation further accentuates as a result of depopulation and loss of labour force.

2.2.1.2 Driving forces

The main driving force leading to an ageing population and a shrinking and ageing working population is a continuation of the trend of falling total fertility rates, a trend continuous with a reduction in mortality rates. The outcome is increasing longevity and declining natural population growth.

Particular features of this driving force include the following:

- Continued decline in the total period fertility rate, with a reduction in child-bearing of women between 18-30
- Continued progressive ageing of the population, most notable in older cohorts - the 'fourth generation – in particular those aged between 80-85 years, and centenarians (100+ years) so that population ageing is 'deepening'[12].
- There is also a 'feminisation' of population ageing (primarily a consequence of lower mortality rates among women). As the population ages, so the female to male ratio increases. Also notable is that that almost 45% of older women are widows, and so live without 'spousal support'
- The working age population vis-à-vis the rest of the world falls and the age structure of the European work force becomes increasing dominated by the 45-64 cohort
- Increasing demographic segregation, more poverty and isolation amongst some older cohorts, others living in relative luxury in retirement villages in desirable locations.

[12] Eurostat predicts an increase of persons aged over 80 of approx. 16 million between 2005 and 2030, see Table 8 below.

- Migration into the EU continues to rise, both legally and illegally, but as destinations are confined to certain MEGAs, the desired 'replacement potential' has been limited.

2.2.1.3 Context and process of scenario development

In the decade and a half since the turn of the century fertility rates have continued on a downward trajectory. The average fertility rate has dropped to 1.2 (0.3% less than the rate in 2004). Meanwhile, life expectancy has continued to rise. Indeed, at birth, life expectancy in 2015 stands at 82 years for men, 87 years for women. The proportion of European population above the age of 60 has also increased from 21 percent in 2000, to between 8 to 15 percentage points higher. In other word, the numbers of the population above 60 is approximately1.5 times the level it was at the beginning of the century. Similarly, the proportion of the population below age 20 has declined up to 2015, but it is not directly a mirror image of the proportion of elderly. The proportion of children and teenagers in Europe has declined from its 2000 figure of 23 percent to 15 percent in 2015.

Demographic change has also started to be reflected in economic change. The declining number of workers has slowed down economic growth, with the ageing of the population adversely affecting consumer demand, asset values, corporate profits, and balance sheets. This occurs more heavily in some markets than others - in mature markets such as cars and home appliances, sales have shrunk year after year[13]. This is because, in its early stages, depopulation is characterised by the shrinking of the youngest age groups, and thus demand for products and services consumed by the young is the first to decline. In Germany, for instance, the cohort born between 1995 and 1999 is only 47 percent as large as the cohort born between 1970 and 1974. Financial services providing top-up pensions and second mortgages targeting more financially secure older people have flourished.

As a proportion of the labour market, the service sector has continued to grow rapidly. The majority of the new 'working class' employment now involves servicing the private or domestic 'needs' of middle class older people. Also in evidence has been a growing intergenerational division in service sector delivery, with a steep increase in occupational demand focusing on providing for needs of a growing elderly population. This has been accompanied by a boom in professional 'caring' qualifications.

Despite a rise in home ownership among older people, there has been a steep contraction of housing demand. This has undermined property values creating both reverse wealth effects at the household level and balance sheet weakness among financial institutions that hold mortgage-backed assets. This is seen to be related to 20 percent decline in the 25-44 age group across Europe, with certain regions, such as Spain and Italy seeing more radical declines of 36 percent and 30 percent respectively.

By 2030 the number of people in the over 60 age category is some 40% higher than at the turn of the century. In addition there has been a marked rise in the very old. In the UK for instance, compared with the 300 people aged 100+ in 1950, in 2030 there is a growing expectation that living for a century will be the norm for thousands of people. However, changes to the age structure are most marked in Germany. Here, by 2030, people over 65 accounted for almost half the adult population, compared with one-fifth at the beginning of the century. In other European countries the proportion of people over 65 is at least 30%. Furthermore, as the country's birth rate has failed to recover, the under 35 population has shrunk about twice as fast as the older population has grown. The net result is that the total population, 82m at the start of the century, has declined to 71.5m by 2030. The number of people of working age has fallen by a full quarter, from 40m to 30m.

[13] Arguably this has produced some pay-offs in terms of environmental sustainability.

These trends have been replicated to varying degrees across the EU. The key factor continues to be a failure of population replacement, producing the fall in the total population and working age population. There may be some correlation in the rising longevity and falling fertility, so that at the same time as life spans continue to rise, so fertility continues to fall as women leave childbirth later and later. By 2030 the TFR is barely at 1 per woman. The combination of this decline in birth rates and the increase in the life expectancy of people has created the 'gerontological drift'[14].

At the beginning of the century it was estimated that by 2030 the age at which full retirement benefits start would have risen to the mid-70s in all developed countries, while benefits for healthy pensioners would be substantially lower than their 2005 levels. It was also argued that fixed retirement ages for people in reasonable physical and mental health would have been abolished to prevent the pension burden on the working population from becoming unbearable. These predictions and concerns arose from a young and middle aged working population who suspected that there would not be enough pension provision when they reached traditional retirement age. But between 2005 and 2030, continued and growing electoral pressure from older voters, meant that pension reform was not politically feasible. Consequently, the estimates made by the World Bank in the 1990s, that spending on public pensions would increase from under 9% to over 16% of GDP between 1990 and 2040, have proved a fair evaluation[15]. By 2030 pension costs have reached 15% of GDP.

2.2.1.4 Impacts

- **Macro-economic, social and political impacts**

The 'baby boomer' generation have been retiring in large numbers resulting in the 'emptying out' of workplaces. This has been particularly noticeable in the area of public sector service employment. Despite various policy measures to retain workers, old people have been drawing their pensions much earlier than the retirement age. This reflects the growing economic power of older persons, who not only continue to draw pensions based on transfers from a decreasing workforce, but have been able to negotiate and maintain subsidies on many aspects of life, such as transport, entry to cultural events etc. Some policy makers have argued that these need retaining given the propensity of older people to save rather than spend, all efforts need to be made to retain older people's stake in the functioning of the economy.

One outcome of this is that less than 4% of men remain in the workforce by the age of 65. The level of economic inactivity has also remained high, well above the 2004 figure when 40% of Europeans of working age were economically inactive. The continued early exit rates from the labour market have accentuated by late entries with a continued emphasis on higher education extending for longer periods. Consequently the number of workers has fallen while the number of those dependent on them has risen. By 2015, the number of pensioners has grown relative to the number of workers, with 55 pensioners for every 100 workers (compared to 35 people of pensionable age for every 100 of working age in 2004). Thus the dependency rate stands at 2 people in work for every one in retirement. Inter-generational conflict resulting from this 'burden' has been the subject of much trade union debate, threatened and actual action.

Concerns about the declining competitiveness of the European economy relative to younger and growing economies continue. Developments in R&D and ICT remain the hope for its future global ranking, as well as reliance on technological advances to deal with persistent

[14] Characterised by an increase over time in the proportion of older people relative to younger people.
[15] Higher than the forecasts of the Economic Policy Committee given below.

labour scarcity problems. In the field of long-term geriatric care, temporary work visas for migrant workers has become a typical way of ensuring adequate staff, this has lead to allegations of the misuse of the guest worker syndrome, though there seems to be no shortage yet of migrants seeking these positions.

The consequences of the ageing of the population have not been confined to the labour market and related issues, the changing demographic balance have affected voting behaviour and subsequently political developments. The increasing power of the 'grey vote' has effectively blocked reforms to pension schemes and to proposals to increase the retirement age. Similarly, as the number of retired people has out numbered young voters, older people have become a determining force in shifting public spending priorities away from provision of services commonly associated with the young, such as nurseries, schools and playgrounds, towards services for the elderly, such as retirement homes and health care. At the same time, spending on the latter years of life has risen as the proportion of users of these services has increased relative to younger people. These changes in spending begin to be reflected in cultural and media output, with a marked reduction in emphasis on youth evident in at the outset of the century.

Nightmare visions depicting overwhelming demands on future health care budgets of an ageing population, popular at the end of the last century[16], have not materialised to the extent that had been predicted. Improvements in health and lifestyle of a large sector of older adults have resulted in dominance of the so-called 'receding horizon scenario', where the onset and progress of disease and disability have been postponed to precisely the same extent as death itself, so that the number of years of diseased and disabled existence have remained unchanged. The 'plateau effect' in some regions, and for a minority of people, has been further reduced in accordance with the 'compressed morbidity scenario', where both disability and death are postponed but the former more so than the latter, so that the interval between the onset of chronic disease or disability and death has been shortened. However in poorer socio-economic groups, higher mortality rates among men have persisted, and among women an extended period of dependency has become the norm, often with minimal and remote forms of support.

Social differentiation has not been reduced during the ageing of Europe's population, indeed socio-economic divisions – without policy intervention - have visibly multiplied in the period of 'remaining life' (age cohort 65-95+). Amongst higher income groups, live-in carers and domestic workers for older adults have become increasingly popular and large homes designed with, 'carers quarters' attached, have been developed throughout the EU. Conversely for lower income groups 'distance surveillance centres' have emerged. These sparsely staffed centres monitor the homes and movements of elderly people. Such 'distance care packages' have done little to confront the problem of isolation in old age. Indeed depression in the very elderly has increased as these forms of technology have not been used to maximise social or community contact. For all income groups the long-term consequences of a continued rise in marital and kinship insecurity has undermined family care of the elderly.

In general then all aspects of how life is organised have been changing as a consequence of the demographic shift; housing, transport and other forms of infrastructure have started to take different forms and there has been a revival of new forms of polycentricity, at the

[16] The 'nightmare scenario' where the age at which disease and disability strikes remains as it was in 2000, but death is postponed was the basis for the claims of an 'exponential' growth of health care costs. This was based on the apparent constant 'high' in health care costs from age 80 onwards in many member states (based on data from the Economic Policy Committee of the European Commission), depending on the length of the 'plateau effect'.

micro level, as older people prefer local accessibility to travelling long distances to large centres to shop etc. However at the macro level only France and the UK have experienced rising populations and this has largely been due to increased concentration and a continued influx of people to the conurbations around the Isle de France and Greater London.

- **Regional and territorial impacts**

The economic impact of the ageing population has varied significantly at the meso level, as some member states and regions have felt the impact of ageing much sooner and more strongly than others. In countries with more serious pension problems (such as Germany) public debt has grown to over 60% of GDP. Within the EU, Italy and Germany have seen their working age population drop by 47 percent and 43 percent respectively. By contrast, France and the United Kingdom have experienced less drastic declines of 26 percent and 15 percent. In countries where the rising costs of old age has been more severe (such as France, Italy and Spain), intergenerational conflict has been taking the form of so-called 'age riots' which have taken place intermittently in certain metropolitan areas.

Patterns of fertility decline at the macro level have converged, though at different rates, taking place firstly in North and West Europe (from the 1970s), followed by South and then Central and East Europe. Thus a similar transition has been occurring but at different time scales. Ageing has been felt first in North and West Europe, but has been developing rapidly across the Mediterranean, where life expectancies are among the longest in the EU. In Central and East Europe, where mortality rates had increased at the turn of the century, life expectancy rates have started to fall into line with the rest of the EU thus producing similar ageing trends. These have been exacerbated however as a result of intra-European migration. Since the end of quotas for East to West European countries in 2011, demographic imbalances in areas away from the economic centres of Central and Eastern member states have become serious, with – for instance - a shortage of working people in caring and other medical occupations leading to service shortfalls. The only countries where there has not been an overall fall in population over this period have been France and the UK.

At a macro level, the East/West, South/North, centre/periphery and urban/rural divisions within the EU have started to take on a significant age element. The East, South, rural areas and periphery have become either magnets for older people (in the case of the South) or areas where older people have been increasingly left behind, as younger cohorts move to economically more dynamic areas.

Many affluent older people are more mobile and have more diverse lifestyles. As such, they have begun to choose 'where to retire' and, increasingly, they have chosen to retire in areas with lower crime rates and good access to services, (particularly health care and hospitals), and with a pleasant climate. Indeed, residential segregation by age is apparent at the macro and micro level. Regarding the former, across Europe, older people are moving to Southern European 'retirement destinations'.

At the micro level, within member states, there are signs of 'age' segregation with retired people concentrating in rural areas, although there is a residual (mainly low income) older population remaining in urban areas. There are also an increasing number of gated type communities, which designate age or 'no children' conditions on residents. These trends are producing a growing spatial differentiation by generation.

In summary unregulated population movements to and within the EU have exacerbated, rather than mitigated in the way that had been hoped at the beginning of the century, the effects of the under-lying ageing trends in the period 2005 to 2030.

2.2.1.5 Final image

In 2030 the balance of power politically, economically and spatially will be increasingly dominated by older people. In territorial terms this will be apparent in a division of space with younger people being concentrated around urban working areas and retirees distributed across suburban and rural spaces. At a macro level there will also be differences in the age distribution of the population, with Southern areas of the EU becoming retirement destinations on a much larger scale than was apparent at the turn of the century. It has become the norm to work in the MEGA areas of the Core during working years, and retire away from these areas relatively early, in spite of continuing longevity and related debate about what the average retirement age should be.

Resistance to large-scale or 'directive' immigration has meant that the ageing of the workforce and population, which began at the end of the last century, has shown itself to be largely irreversible in nature, and gains from international immigration in its legal form have been relatively insignificant, except in the cities where the populations were already younger. In Eastern Europe the loss from emigration, particularly of younger peoples has contributed to the ageing effect. Attempts to contain and control illegal immigration continued to flounder, but the informal economy have continued to flourish – including the service sector and care of the elderly.

Demographic changes have had a continued negative impact on labour force rates, most noticeably in the East. Since 2010 the net intake of young people entering the work force substantially fell, reducing their labour force participation rates relative to workers over the age of 45. However the work force has been 'squeezed' at both ends, due to the popularity of late entry (higher education) and early exit (early retirement), at least among higher socio-economic groups. Between 2010 and 2025 technological adaptations partially compensated for declining work force participation rates as efforts were made to try and maintain the participation of some older workers in 'knowledge based' work.

2.2.1.6 Appendix: Base-line forecasts supporting this scenario

	2005-2050	**2005-2010**	**2010-2030**	**2030-2050**
Total population	-2.1	+1.2	+1.1	-4.3
(in thousands)	*-9642*	*+5444*	*+4980*	*-20066*
Children (0-14)	-19.4	-3.2	-8.9	-8.6
Young people (15-24)	-25	-4.3	-12.3	-10.6
Young adults (25-39)	-25.8	-4.1	-16	-8
Adults (40-54)	-19.5	+4.2	-10	-14.1
Older workers (55-64)	+8.7	+9.6	+15.5	-14.1
'Third generation' (65-79)	+44.1	+3.4	+37.4	+1.5
'Fourth generation' (80+)	+180.5	+17.1	+57.1	+52.4

Table 8 EU25 population change (%) (Eurostat projected)

2.2.2 Scenario 2: Open border

2.2.2.1 Hypothesis underlying the scenario

This hypothesis is a prospective policy scenario, based on the notion that an open and actively promoted immigration policy will be introduced which will change current demographic, migration and labour market trends significantly by 2030.

European societies become aware of the strong implications of their strongly ageing populations on the demographic, social and economic future. Political discussion mainly focus on the implications on shrinking labour markets, on financing of pensions of the strongly increasing number of elderly people, but also on the capacity of European societies for economic and cultural innovation. The European Union and quite a lot of its member countries actively change their immigration policy around the year 2010. Since that time, immigration from other continents, especially from Asia, Africa and South America is no longer strongly restricted, but regulated in more or less coherent immigration policies.

2.2.2.2 Driving forces

The main driving force leading to a change in migration policy has been the awareness of the demographic reduction. In fact, the problem of the ageing population and a shrinking working age population had become a real political shock after 2005 when politicians and the public of different countries in Europe became aware of the social, demographic and financial impacts which could occur in case of a continuation of the trend of falling total fertility rates and the reduction in mortality rates without any compensation through immigration.

2.2.2.3 Development of the scenario

The awareness of the demographic impact grew first in Spain, where a great number of unregistered workers from Northern Africa lived. Some time later Germany, where the immigration from the Republics of former Soviet Union diminished after 2000, decided to open the borders to immigrants from other regions. Hungary, where population had diminished for several years, followed. Finally, the European Commission decided to strengthen a new policy opening the border for the whole territory – even if a great number of amendments, in time, in geographical coverage and especially in skills demanded limited the extent of the decision.

This decision, even if it had been taken first under some contextual pressure such as the situation of boat immigration in the Mediterranean, migration on the Russian border and legalisation in Great Britain, has also been a consequence of imminent Turkish accession. The process has to been seen as the result of a collective awareness of the impossibility of maintaining a 'Fortress Europe' in face of a demographic and economic situation in which population decrease, a strong ageing process and loss of competitiveness would have altered the future of the continent. The intensity of the policy process was high, so that within a few years a majority of the population of most of the member states accepted the opening up of borders.

After 2010 and especially since 2015, net immigration rates increased in almost all European countries. Only after 2020 did some restrictions start to limit somewhat the liberal immigration policy. During the whole period since 2010, we can observe the following effects of the migrations on the total of population increase:

- For Europe as a whole, the process of aging population continued and accelerated during the 2020s. The most rapid growth of older cohorts is occurring in the oldest age groups – in particular those aged over 80 years. In other words, population aging is becoming 'deeper' with an accumulation of very old, and potentially, very frail people.
- The ageing process has somewhat been reduced by immigration, strong effects on population growth, on the age structure of the population and also on the tendency of feminisation.

The increasing immigration processes not only contributed to an influx of younger population during their active period, but also to an upturn in fertility, of the immigrants as well as that of the indigenous population. Thus, the dramatic demographic change projected around the year 2000 did not occur. On the other hand, the effects of an ageing population, of immigration and also of the migration patterns within Europe brought deepening social and spatial inequalities. In addition, immigration did not affect all the countries in the same way, and since regions of recruitment have been quite different, processes of integration, return to their country and exchange between the different contexts have varied. The disparities between the countries as well as between urban and rural regions accelerate for several decades, before new concepts of territorial development have been elaborated at the end of the 2020s.

2.2.2.4 Impacts

- **Demographic, economic, socio-cultural and EU policy impacts**

As mentioned, the demographic outlook for Europe for the 21st century has been the decisive factor of the change of immigration policy. Under these aspects, the 'open border' policy has been successful, since the age pyramid has been enlarged in the age groups of young adults and children. Of course, the number of elderly people has continued to increase and their number reached new records in absolute and relative figures. But the index of dependency did not grow any more after 2020. In a direct or indirect effect of the policy, the number of births and even the fertility rate re-increased after 2015, bringing a second effect of counterbalancing the ageing process of the European population. The large acceptance of immigration brought an increasing number of young mixed marriages – despite some reluctance of the endogenous population - and the maintenance of endogamy in some groups of immigrants.

Overall, the 2010s and 2020s have been a period of economic growth, which allowed the integration of a great number of new immigrants as well as the national population in the labour markets. Nevertheless, the strong increase of elderly people – the baby-boom generations born between 1945 and 1965 – put pressure on social welfare system, on the health sector and on changing demand for the housing sector, for tourism and leisure and in consumption. Immigrants concentrated – at least in relative terms – in the health sector, in tourism, in construction, but also in industry and production, which did not undergo the process of delocalisation as it was around the year 2000. In addition, the new immigrants created types of jobs linked to demand of their own population, especially in commerce, education and transport.

As well as immigration, higher fertility had an effect of reducing the work force participation of younger women. On the other hand, older adults, both men and women became more strongly integrated into the labour market, since the legal age of retirement has been rising in most countries, and since economic demand has been positive. This tendency has been underlined by the effect of a high qualified generation of older persons of working age born between 1960 and 1980. This generation has been highly motivated since they have lived through the experience of a difficult period of entrance to active life. There was an increase in the active population, higher activity rate also from elderly people and a growing percentage of immigrated work force, a lower productivity per working hour could be compensated by a stabilisation of social transfers (i.e. on unemployment, retirement).

Periods of high immigration are often characterised by increasing tensions between generations, between less qualified endogenous workers and new arrivals, especially skilled main force, between richer and poorer regions, but especially between immigrants and inhabitants in rapidly changing town-quarters. During the first decades of the 21st century, some of these divisions have been clearly active, especially the spatial ones. In general, despite the high number of new arrivals, ethnic conflicts have been quite rare, though some violent riots occurred around the 2010s, especially in some Eastern metropolises and in some old-industrial towns in Western Europe. In general, the quality of security did not worsen during the last 30 years, even if problems of integration touched many urban regions. The liberal immigration policy and the high financial efforts in integration in the national context allowed the maintenance of security at a level, which has been considered by the populations as satisfactory. On the other hand, integration in a local or national context of the whole immigrant population did not happen, especially among unqualified groups. English became the standard language in many social contexts, not only in tourism, multinational enterprises and research, but also in culture, commerce, transports and health sector. The tensions between generations often arose because the older generation has been composed, by 80 to 90% of nationals, while the young generation is of foreign origin by over 50%, in 'classical immigration countries' (Luxemburg, Switzerland), but also Germany, Sweden and Southern Spain. The political acceptation of the world-wide increase in migration and the opening of the borders of Europe related to the widely acknowledged variation in fertility rates between the Continents. But the increasing immigration had contributed to social tensions. High investments in the education system had to be foreseen, especially for basic school level, since immigrants started to be dominant in several metropolises and within them in a lot of quarters. Investments in public housing policy had to be reintroduced, since the demand on inexpensive apartments became chronically high. Strong immigration and internal migration within Europe strengthened the position of the English language, which not only increased its role as the dominant language for Europeans, but also for immigrants, especially for skilled persons, coming from China, Russia and the Arab countries.

Introducing migration as an instrument to compensate emerging deficiencies in the age structure, the EU policy had chosen to follow an active and proactive policy in order to intervene on the demographical structure. By choosing this path, the EU has also had to intervene in a series of accords with the Non-European countries which have been the origin of immigration, such as Central Asia, India, Pakistan, Indonesia, China, the Arab countries, Africa, Brazil and Spanish Latin America. These accords have been made both bilaterally as well as in a general facilitation of migration.

Positive net migration is composed of strong immigration, but also quite important flows of emigration and returns to the countries of origin. Accords on education bonuses have been given to countries attracting young immigrants as well and concordats for innovation transfers have underlined growing interdependency on a world-wide scale. Europe went through a series of political crises due to international tensions between Outer-European

countries, especially in the Arab world, in which the political interests diverged between some member countries. This has been especially the case after accession of Turkey.

- **Territorial impacts**

Territorial inequalities grew. Immigration from abroad but also within the Union tended to concentrate on the North, West and Southern countries of Europe, but neglected somewhat the Central and Eastern countries. The demographic evolution had been clearly in favour of urban and suburban regions, but not rural parts, especially not those with low accessibility. In this way, the 1980s and 1990s had been the last decades for a long time to show positive demographic evolution in rural areas. Thus, the demand for a continuation of the policy of structural funds has been expressed increasingly after 2015 – and it has been followed by measures to strengthen rural and peripheral Europe, especially in the South-East and East. Immigration from outside the Union shows some differences according to: country of origin, level of education, activity fields, groups of recruited immigrants, cultural activities and in housing demand. Differences are also given by main origin and destination patterns; Spain, France and Great Britain have continued to have privileged contacts with the former colonies of the 19th century and thus proposed integration in a known linguistic context. Differences between the European countries have been underlined by the variability of the immigrants: Spain and Portugal as destinations for South Americans (as well Moroccans), France for North and West-Africans, Italy and Greece for Eastern Mediterranean's, Northern and Eastern Europe from Russia, Iran and Turkey. Quite strong population growth in Western Europe, especially in France, as well as in Scandinavia, due to strong immigration and natural increase; slight population growth in Southern Europe, in Great-Britain, Germany, Poland and the Czech Republic due to immigration counter-balancing natural population losses; demographic stagnation in other Central European countries, such as Hungary and the Baltic countries, but also in Spain, where low natural increase has not been compensated for by net migration growth.

Ageing processes concerned some countries quite heavily with serious pension problems (such as France and Germany). Within the EU, some countries have been much more vulnerable to ageing than others. Immigration did not touch all European countries in the same way and it did not contribute in all regions to counterbalance natural losses. We can distinguish the following pattern, which have been dominant during the 2010^{s} and 2020^{s}:

- Quite a strong population growth in France, the Netherlands, in Scandinavia, as well as on the Mediterranean Islands (Cyprus, Malta) due to high immigration rates and positive natural increase;
- Population increase essentially due to a positive balance between births and deaths, but relatively low gains by migration: Ireland, Finland and in some extend Poland and Lithuania.
- High net immigration, but negative natural increase: Germany, Belgium, Czech Republic, Switzerland, Italy, Spain, Greece;
- Low net immigration and natural decrease: Baltic states, Hungary, Bulgaria,
- High natural increase and net migration losses: Turkey
-

2.2.2.5 Final image

In 2030, more older people than ever before are being supported for longer than ever before from a population of working age that are shrinking continuously in absolute size. In order to counterbalance this tendency, immigration from outside Europe has been encouraged by developing a new demographic policy of the European Union. This policy actively supported the arrival of immigrants, legalised illegal presence and tried to

encourage integration models. This policy had a positive effect on the age structure of most of European countries, which otherwise would have turned in a decreasing and strongly ageing spiral. The implication of the policy profoundly impacted the demographic structure of most of the member countries, the labour market and the social insurance systems. But immigration touched also the social, cultural and political life of Europe as well as the interrelations of Europe and the main regions of immigration. In addition, migration had very strong impacts on the countries of origin as well. During the twenty years that this policy has been applied, the character of immigration has changed, since the intensity of immigration diminished and international migration flows have become less unequal. Not only has re-emigration increased, but also more Europeans than before choose to spend part of their life elsewhere or to emigrate definitively. The integration of some 150 million new immigrants caused quite severe problems, especially in metropolitan areas, where social segregation and differentiation by origin became increasingly an issue. Nevertheless, the fact that new immigrants from different origins did not concentrate in distinct quarters, and that integration was in national contexts, as well as in English, ensured that strong conflict was avoided. We have to distinguish the impacts of the first years of the changing policy from that of the later adaptations, in which some violent reactions took place, parallel to a widespread social acceptation of a new European society. Currently, in 2030, back-lashes with some legal and social restrictions of immigration can be observed, but the experience of the last decades shows that this will probably be a transitory phase. Open border policy has also been accompanied by a re-increasing role of social welfare state in the domains of housing, social integration and health sector.

The strongest preoccupation of the migration process has been the strong spatial effects of these important population movements. At the larger scale, we observe some countries and regions with very limited immigration from abroad and some strong concentration in big metropolises. At the local scale, migration contributed to social and spatial segregation, even if these processes were not as important as they have been in North American metropolises around the turn of the century.

2.3 Scenario conclusions

2.3.1 Main issues resulting from the scenarios

The key issues arising from the first scenario 'Silver Century' are pension and budgetary changes, health and long-term care requirements and the challenges of a shrinking and ageing work force. For the second scenario 'Open Borders' the dominant issues are the high costs of integration, problems of segregated regions and quarters and also increased health care need.

Focusing specifically on themes which have a territorial impact, for the first scenario, changing demand for housing, welfare provision, commercial and transport infrastructure could have major ramifications for land use with a possible growth in popularity for polycentric organisation at the micro level as ease of access becomes more desirable. At the macro level though, for both scenarios, issues relating to migration show the most immediate and visible effect. Migration within the EU may influence the impacts of ageing at regional level if younger, more mobile people leave less developed regions for regions with a more attractive range of employment opportunities. Southern regions may also experience inward migration of older people drawn by the milder climate. On a regional level new urban rural divisions are likely to be strengthened as older people relocate to rural areas leading to problems such as a rise in house prices which gives additional cause for local young people to move to urban areas, contributing to problems of social exclusion.

One cause of rising rates of mobility among the 'young elderly' is the trend of early exit from the labour market. One generally accepted response to the ageing population is increasing the absorption of older adults into the labour force and possibly increasing the retirement age. Moves towards this may produce resistance from the 'grey vote', who may make their - statistically stronger voice – heard in a variety of other ways too. Forms of 'inter-generational conflict may become apparent in assessing the spending priorities of local governments, for example away from schools and towards health services. Spending patterns may similarly alter, impacting the domestic economy.

Policies designed to stimulate the birth-rate and provide replacement migration are likely to be the most controversial. Higher payments for second and subsequent children, for instance, may be considered unfair by those with one or no children, while explicit attempts to attract younger workers from outside the EU could exacerbate racial tensions in certain areas.

2.3.2 Implications for EU policies

Excluding migration as an instrument to compensate emerging deficiencies in the age structure, changes in the demographic structure of Europe by 2030 can only be enacted by policies designed to influence other non-demographic processes which have demographic consequences. These could target incentives to increase fertility. Alternatively, they could focus on ways of managing the economic and other consequences of an ageing population, possibly by aiming to:

- increase the work force participation of women[17]

[17] With the provisos given above, Part I, 2a which unless addressed could continue to contribute to falling fertility levels.

- increase the work force participation of older adults
- increase economic activity rates without increased labour force participation
- promote technical improvements which would lead to a rise in productivity irrespective of the demographic decline.

These policy objectives all involve a concentration on non-demographic factors, which affect the economic performance of the EU, which could be used to offset demographic trends. This may be more appropriate, firstly as demographic trends are so difficult to influence, secondly as it is the declining proportion of labour incomes and the growing concentration of wealth, as well as the shortening of the period of working life (in the baseline 'Silver Century' scenario) that are likely to contribute to a fiscal crisis in welfare provision - rather than just the ageing of the population per se.

Policy developments that may challenge this may well need to explore ways of integrating older people, both socially and economically, in order to bring benefits individually and collectively and lower projected social expenditure rises. In view of the objectives of the Lisbon agenda and its emphasis on the development of a knowledge economy, one issue may be how to harness the non-manual utilisation of older people positively in occupations where experience counts. Research by the European Population Committee found that older workers can be more flexible, readily trained and productive (where the work is not physically demanding) than younger ones and that their productive capacity is already 'grossly underutilised'. May it even be feasible that an ageing population, if well managed, may contribute better to the goals of sustainability as set out in the Gothenburg agenda?

Recently the Commission have expressed the hope that economic immigration will help to 'overcome short run labour shortages in several sectors' and be key to fulfilling the Lisbon objectives 'by 2010 and beyond' in view of 'ageing and related skills gaps'. They have also expressed the hope that it will help, in a broader way, the EU to cope with an ageing population and demographic imbalances and their impact on economic growth and other related problems[18]. However, with respect to migration flows, the scenarios suggest that without regulation of type and destination of migration from outside Europe and intra-European migration, existing imbalances will not be addressed to the degree hoped for. Rather concentration around existing MEGAs will increase, as will the de-population and more negative aspects of an ageing population in some Central and Eastern European regions and most peripheral areas across the EU. The issue of a continued lack of harmonisation of socio-economic policies at the meso level could further impact decisions for trans-national migration and may result in further imbalances. Agreements at the macro level on minimum income during parental leave, or leave to care for elderly relatives, might help to tackle this problem.

If a positive immigration policy is to be well managed, the issue of how immigrants are integrated into the EU must be high on the agenda[19]. Related to this, are the issues concerning the age profile of immigrants, their relative fertility rates and relative skill levels and the consequences these factors for both 'donor' countries and 'settlement' regions of the EU.

[18] EU-OECD Conference "The Economic and Social Aspects of Migration", Brussels 21-22/01/2003

[19] The need to focus on integration has been highlighted recently by the Commission Brussels, 3.6.2003, COM (2003) 336 final.

2.3.3 ESPON core indicators related to the scenarios

Structure	Total Population
	Male (percentage)
	Female (percentage)
	Median Age
	Total Population Development
	'Natural' Population Development
Distribution	Urban Proportion
	Population Density (Persons per sq. km)
	Sex Ratio (Male per 100 Female)
	Sex ratio
Growth indicators	Average Annual Growth Rate
	Life Expectancy at Birth
	Total Fertility Rate
	Total Period Fertility Rate
	Infant Mortality Rate
	Child Mortality Rate (<5, <15)
	Mortality Rate (General and Age, Sex and Occupation Specific)
	Morbidity Rate (General and Age, Sex and Occupation Specific)
	De-population
Composition change Indicators	Population under 15 (%)
	Population 15 - 64 Years (%)
	Population 65 & Above (%)
	Age Dependency ratio
	Sex Dependency ratio
	Potential Support Ratio
	Economically Active Population (%)
Migration indicators	Population density
	Net Migration (Immigration and Emigration/'gains and losses')
	Gross Migration (Immigration and Emigration)
	Migration by region and type of region (in-migration, out-migration), country, EU, pan-European, inter-continental
	Replacement migration (labour market measure)

2.3.4 References

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3. Thematic prospective scenario 'Transport'

Jacques Robert (Tersyn)

3.1 Scenario base 'Transport'

3.1.1 Present situation, trends and projections

The present situation of the European territory in the field of transport is characterised by :

- uneven levels of potential accessibility[20]. The most accessible regions by road to the population are quite identical with the Pentagon, while the least accessible are all located in the European periphery. It is remarkable that the largest part of the new member countries have an accessibility level similar to that of south-west France, northern Spain and Denmark, being largely higher than that of Portugal, Ireland, western and southern Spain. Considering accessibility by rail, the most accessible regions are largely contained in the Pentagon with some extensions towards East-Germany as well as towards the Rhone and Loire valleys in France. Areas with low accessibility by rail in the European periphery are more extended in the case of Spain, Bulgaria and Romania. Accessibility by air provides a completely different picture, compared with those on land transport accessibility. The map of Europe is converted into a patchwork of regions with high accessibility (those with one or more large airports) surrounded by regions with low accessibility. Low accessibility is not a concern only for a number of regions of the European periphery, but is also an issue for some regions located in the European core.

- imbalances of transport modes. European transport suffers from an imbalance between transport modes to the detriment of railways (mainly with regard to freight transport), of maritime and inland waterway transport. Road makes up 44% of the goods transport market compared with 41% for short sea shipping, 8% for rail and 4% for inland waterways. The predominance of road is even more marked in passenger transport with 79% of the market, while air with 5% is about to overtake railways which have reached a ceiling of 6%. Trends are favouring air and road transport. Between 1970 and 1998, the share of goods carried by rail fell from 21% to 8.4%. The emergence of low cost companies is a major factor in the revival of air transport. The map of air traffic flows in Europe has considerably changed in a few years.

- the predominance of national characteristics in the organisation of networks and corridors. It is possible to identify three main types of network and corridor morphology: centralised networks with a peripheral way (Iberian Peninsula), parallel networks (France, Italy, UK, Sweden, Finland), networks with a square pattern (Germany).

- the growing importance of East-West flows, complementing the traditional north-south pattern. While major flows of road and rail traffic used to show a pattern of corridor broadly

[20] Potential accessibility is based on the assumption that the attraction of a destination increases with size and declines with distance, travel time and cost (see ESPON Study 2.1.1. 'Transport services and networks: territorial trends and basic supply of infrastructure for territorial cohesion'. Coordination CESA Tours 2004)

oriented in the north-south direction, a general re-orientation of new flows in the East-West direction has already begun during the 1990s. The recent EU enlargement has strengthened the East-West orientation of flows. It can however be observed that the cross-border permeability in central and eastern Europe, in particular along the external borders, sis still limited by a number of obstacles.

- the changing transport paradigm in the new member countries. During the 1990s, freight transport declined by 16% in the new member/accession countries, whereas freight transport activity in the EU-15 increased by 30%. Although the new member countries have inherited a transport system which encourages rail, road haulage increased between 1990 and 1998 by 43.5%. The rate of motorisation has sharply increased in the new member countries over the past 15 years.

- growing traffic congestion on major networks, in particular in the central regions. The past decade saw not only a worrying increase in traffic congestion in urban areas, but also a new phenomenon of congestion on the major axes of the Trans-European Transport Network, increasing the number and size of bottlenecks. Missing links in the infrastructure and a lack of interoperability within specific transport modes and for intermodal transport systems are all reasons aggravating congestion. While European integration and globalisation favoured the growth of exchanges and of traffic investments in transport infrastructure and systems declined over time. Overall investments in the TEN-T in the EU-27 amount to less than € 30 billion/year since 1996; so that more than 20 years would be needed to complete the network. All transport modes are affected by congestion.

As far as forecasts are concerned, various studies were carried out at EU level in recent years. Most studies contain several scenarios related to the nature and intensity of transport policies likely to be implemented in future. The baseline scenarios indicate both substantial increase of transport flows in the decades to come and significant evolutions in terms of modal shift. The transport forecasts of the TEN-STAC study (Trend+ Scenario)[21] reveal considerable growth rated of transport performance in the EU-27 countries between the base year 2000 and the year 2020: +31% for passenger x km and +75% for freight (tons x km). The study 'European energy and transport trends to 2030'[22] indicates that the structure of passenger transport is projected to undergo significant changes under baseline assumptions, with air transport being the fastest growing transport mode over the projection period, accounting by 2030 for 10.8% of passenger transport activity, compared to 5.4% in 2000. Public transport modes are projected to continue having a more important role in satisfying passenger transport activity in new member/accession countries over the projection period, compared with the EU-15, while the contribution of air transport activity will remain by 2030 at levels well below those projected for the EU-15. The structure of freight transportation is also projected to change considerably in future. Road transportation will gain significantly in terms of market share at the expense of rail. The share of rail transport will fall from 17.1% of total freight transport in 2000 to 11.2% in 2030. the share of inland navigation is also projected to exhibit a continuous, thought limited, decline over the projection period. Starting from a much higher share for rail freight transport in 2000, new member/accession countries are projected to remain heavily dependent on rail. In 2030, some 24% of freight transport activity in new member/accession countries will be satisfied by rail transport, whereas in the EU-15 the corresponding share will be just 9% According to these baseline scenarios, the costs caused by road congestion are expected to increase considerably in the coming decades at EU-27 level.

[21] TEN-STAC. Scenarios, Traffic forecasts and analysis of corridors on the Transeuropean Network. Coordination: NEA Rijswijk. 2004.
[22] European energy and transport. Trends to 2030. European Commission. 2003.

It must, however, be observed that in all EU-wide transport forecasts produced up to now, the sharp increase of oil price experienced over the past years, as well as future evolutions in this field, have not been taken into account.

3.1.2 Nature, evolution and impacts of EU transport policy

The EU transport policy is a multi-dimensional one. It refers to the development of transport infrastructure (mainly TEN-T), to the liberalisation of transport services, to the modernisation of transport technology, to the increase of transport security, to the development of sustainability etc. Although the EU transport policy was defined in the Treaty of Rome, it became really operational in the early 1990s.

The TEN-T was first agreed in the guidelines of 1996 as well as in the accession treaties in 2002. Total financial needs up to 2020 can be estimated at € 600 billion. Some major projects have now been completed, but in far too many cases, the national sections of networks are merely juxtaposed, meaning that they can only be made Trans-European in the medium term. The implementation of the TEN-T is confronted with considerable delays. As the White Paper on the European transport policy noted, six years after the adoption of the 1996-guidelines, barely 20% of the projects planned for the year 2010 have been completed. A crucial factor that has lead to delays has been the complexity of moving ahead with cross-border projects or cooperation. In order to speed up the process, the Commission has set up the 'Quick Start Programme' covering a range of decisions and immediate actions to develop the network.

The transport sector used to be one of the most protected economic sectors in the former European Economic Community. During the past two decades, the various transport modes were progressively liberalised: maritime transport, road haulage, inland waterway transport, air transport and presently rail transport. Generally speaking, transport liberalisation has generated numerous new transport services at lower price, as demonstrated by the low cost airlines.

The orientations towards a sustainable transport policy were first defined in the White Paper of 1993. The Gothenburg European Council of June 2001 asked that, in future, stress should be laid on the development of rail, maritime and river transport. The Commission's White Paper on European transport policy in 2010 also placed the re-balancing between different modes of transport at the heart of a sustainable development strategy. The implementation of the strategy involves a wide range of measures, such as market measures reducing the discrepancies in competitiveness between the modes (for instance road pricing, actions in favour of intermodality etc.). Despite the existence of numerous measures in favour of sustainable transport, the general evolution in the transport sector and the existing forecasts indicate that the level of success of the sustainable transport policy has so far been quite modest, as the fastest growing transport modes (air and road) are the least sustainable.

The EU transport policy also addresses more technical issues such as interoperability (mainly in the railway and air traffic control sectors), security, development of intelligent transport systems (ITS) etc. While a number of measures are efficient (ITS, security), others are facing serious delays (interoperability in particular).

At the level of national transport policies, a trend can be observed in a number of countries towards the development of new motorways, as a response to increasing demand in road transport. This is particularly true in the countries of central and eastern Europe which have important deficits in this field, but also in a number of western countries like Ireland, the Netherlands, France etc.

3.1.3 Main driving forces in the transport sector

a) Key factors behind the continued growth in demand for transport:

- for passenger transport, the determining factor is the spectacular growth in car use. The number of cars has tripled in the last 30 years, at an increase of 3 million cars each year. Although the level of car ownership is likely to stabilise in most countries of the European Union, this will not be the case in the candidate countries, where car ownership is seen as a symbol of freedom. By the year 2010, the enlarged Union will see its car fleet increase substantially.

- as far as goods transport is concerned, growth is due to a large extent to changes in the European economy and its system of production. In the last 20 years, we have moved from a 'stock' economy to a 'flow' economy. This phenomenon has been emphasised by the relocation of some industries — particularly for goods with a high labour input — which are trying to reduce production costs, even though the production site is hundreds or even thousands of kilometres away from the final assembly plant or away from users. The abolition of frontiers within the Community has resulted in the establishment of a 'just-in-time' or 'revolving stock' production system.

- the progress of the economic integration in the EU, including the successive enlargements;
- in the case of air transport, the main factors of traffic development are the recent liberalisation as well as the related development of low-cost companies.
- the introduction of new transport technologies, such as high-speed trains (induction effect).
- the fact that transport users do not always cover the costs they generate. Indeed, the price structure generally fails to reflect all the costs of infrastructure, congestion, environmental damage and accidents.

b) Main factors of increasing congestion on a growing number of transport axes:

- saturation on some major routes is partly the result of delays in completing trans-European network infrastructure.
- the poor organisation of Europe's transport system and failure to make optimum use of means of transport and new technologies.
- the increasing rate of motorisation in the countries of central and eastern Europe

c) Main factors of territorial imbalance in accessibility:

- market-driven development of infrastructure. In outlying areas and enclaves where there is too little traffic to make new infrastructure viable, delay in providing infrastructure means that these regions cannot be properly linked in.
- low level of intermodality and of adapted transport services in the more remote regions.
- selective development of major infrastructure axes in the new member countries of central and eastern Europe, favouring the accessibility of large cities and of western regions in these countries at the expense of that of the more rural and remote regions (tunnel effect)

d) Main factors of imbalance in transport modes:

- insufficient consideration of social and environmental costs generated by road traffic;
- insufficient competitiveness of alternative transport modes, such as railways, waterways and maritime transport.

- political priorities given to road transport in a number of countries

e) Main factors likely to modify and even counteract present trends:

- Increasing energy price (mainly oil and oil products) which could have detrimental impacts on mobility, on economic development and especially on the road and air transport modes;

- The recent enforcement of the Kyoto Agreement which prescribes a reduction of greenhouse gas emissions;

- Population ageing which may modify the mobility patterns

3.1.4 Identification of scenario hypotheses

The evolution over the past decade has shown a significant discrepancy between the Community objective of sustainable transport and the real evolution of modal shift which is in favour of air and road transport, the least sustainable transport modes. Existing forecasts indicate that present and past trends are long lasting and will not converge with the objective of sustainable transport. The efficiency of the EU transport policy may therefore be questioned. New elements have to be added to this. The weakness of economic development in Europe since the end of the 1990s has weakened the objective of sustainable development, so that the national transport policies emphasize again the development of motorway networks. While this is understandable up to a certain extent in the new member countries where motorways hardly existed up to recent times, substantial motorway programmes are also being implemented in a number of old member states. In a context of sharply increasing oil price, such policies raise the question of their long-term impact, both in terms of accessibility and of environment. On the other hand, the lack of efficiency of the EU transport policy in terms of modal shift in favour of environmentally-friendly transport modes =calls for strengthening the tools, measures and procedures through which this policy is implemented. It seems therefore accurate to investigate the territorial impacts of two opposite policies:

- new EU/national transport policies focussing in priority on the development of motorway networks in order to better respond to present and future transport demand;

- strengthened sustainable EU/national transport policies which will emphasize environmentally-friendly transport modes and counteract road and short-distance air transport. Stronger decoupling between economic development and transport growth seems however to be a prerequisite for this scenario.

3.1.5 Sources of information

The transport scenario base is a compilation of information originating mainly from following documents and reports:

White Paper. European transport policy for 2010: time to decide. European Commission. 2001.

Energy and transport. Report 2000-2004. European Commission. 2004

Intelligent transport systems. Intelligence at the service of transport networks. European Commission. 2003.

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Freight intermodality. Results from the transport research programme. European Commission. 2001.

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Sustainable mobility. Results from the transport research programme. European Commission. 2001.

Communication from the Commission 'Cohesion and transport'. 1998.

Report of the high-level group on the Transeuropean Transport Network (Van Miert Report). 2003.

European energy and transport. Trends to 2030. European Commission. 2003.

ESPON Study 1.2.1. 'Transport services and networks: territorial trends and basic supply of infrastructure for territorial cohesion'. Coordination: CESA Tours. 2004.

ESPON Study 2.1.1. 'Territorial impacts of EU Transport and TEN policies3. Coordination: Institut für Regionalforschung. University of Kiel. 2004.

TEN-STAC. Scenarios, Traffic forecasts and analysis of corridors on the Transeuropean Network. Coordination: NEA Rijswijk. 2004.

3.2 Thematic prospective scenarios

Transport scenarios

Under the theme 'Transport', two prospective policy scenarios are presented, corresponding to rather opposite hypotheses, one favouring road transport as a response to existing and forecast demand, the second being orientated, on the contrary, towards the objectives of the Kyoto Agreement and of the Göteborg Strategy. These scenarios aim at illustrating the contradictory context in which the EU and its member states presently are, with some countries developing strongly their motorway networks to alleviate traffic congestion while the Kyoto Agreement has just been enforced and efforts have now to be developed to ensure sustainable transport.

3.2.1 Scenario 1: 'More investments in motorways'

3.2.1.1 Scenario hypotheses

European integration has been characterised by rapidly growing transport flows, both in the freight and passenger sectors. Available projections indicate that this trend is long-lasting and will be strengthened by the recent EU enlargement and by the forthcoming ones. Considering that modal split towards rail and maritime transport has not really been successful and that there is a clear trend in favour of road transportation in general, but in the new member countries in particular, the EU and national policies decide to make maximum use of the existing capacities of road transport infrastructure and to expand it. The traffic forecasts of the TEN-STAC study are considered as realistic and investments in the road sector should contribute to alleviate congestion with regard to strongly increasing transport flows. The scenario assumes that increase in fuel price will be moderate after 2005 and will not be detrimental to the development of road transport. This means that either increase of crude oil price will be moderate or, in case the price of crude oil will seriously increase, it will be compensated by a corresponding decrease of taxes on oil products.

3.2.1.2 Driving forces

Factors leading to the increase of road transport flows are, among others:

- the increasing mobility of people and the increasing rate of motorisation, in particular in the new member states of Eastern Europe;

- EU enlargements and further globalisation (intensification of economic exchanges); relocation of economic activities in the new member countries;

- delays in the extension and improvement of the TEN-T;

- insufficient competitiveness of alternative transport modes (railways, maritime transport;

- lack of success in decoupling economic growth from growth of transport flows

In the policy field, the driving forces are related to the expansion of the European motorway network and, more generally, to the optimisation of the use of the road/motorway networks as a response to the increase of traffic demand.

3.2.1.3 Contextual elements of the decision to increase investments in motorways

By 2006, the EU had for the fifth year a low rate of economic growth. The mid-term assessment of the Lisbon Strategy had revealed at the end of 2004 that the targets of European competitiveness were not to be reached without a serious reconsideration of the efficiency of EU policies, following in that some conclusions of the Sapir Report published in early 2003. the increase of the unemployment rate resulting from the progress of globalisation and in particular from the acceleration of enterprise relocation towards low-wage countries outside Europe, was a determining factor for the reconsideration of all EU policies as to their economic efficiency.

The EU Transport Policy was carefully and extensively examined. This examination revealed paradoxical aspects. On the one hand, the realisation of a Transeuropean Network and the liberalisation of transportation had been considered at the time of the adoption of the Single Act in 1986 as a key element of European economic development. This had been confirmed by the Commission's 1993 White Paper on growth, competitiveness and employment. The Brussels European Council of December 1993 had adopted a series of important decisions to speed up the implementation of the TENs, leading to the priority projects defined in Corfou and Essen in 1994. The Decision of July 1996 on Community Guidelines for the development of the TEN-T had enlarged the list of priority projects of Community interest. By 2003, total investment needs (including the Pan-European corridors) were estimated at more than 600 billion Euros.

On the other hand, assessments had revealed considerable delays in the implementation of the TEN-T, despite the fact that a number of ambitious projects had been realised. Another important issue was also that the 'ideological' change in the EU Transport Policy which occurred in 1992 in favour of a more environmentally-friendly transportation in Europe (introduction of the concept of 'sustainable mobility' in the White Paper of 1992) had not led to convincing results. Despite significant policy efforts (promotion of maritime, railway and waterway transport, introduction of road pricing etc.), road transport continued to increase at much higher speed than the other transport modes. Available forecasts had shown that this trend was long-lasting and that road transport flows would continue to increase at high rates, whatsoever conventional policy measures would be.

A tense debate took place at EU level and also within the member states involving those wishing to protect the environment and quality of life along the lines of the Göteborg Strategy of 2001 and of the Kyoto Agreement and those considering that present and future congestion of the transport networks would severely handicap the economic development. A determining argument was that the revival of the economy in the new member states of central and eastern Europe was precisely based on (or at least largely conditioned by) the accelerated development of road transportation, departing from the use of the dense, but obsolete railway transportation systems. In 2007, a EU Decision was finally taken to rapidly develop the European motorway network through ambitious investments. Member states would play a decisive role in the implementation of the strategy.

3.2.1.4 The motorway investments strategy

Main objectives of the motorway investments strategy adopted in 2007 was to reduce and prevent congestion on the European main networks (motorways and dual carriage ways). This included the elimination of bottlenecks, mainly in urban regions and in border areas, but also the connection of peripheral and/or landlocked regions to the European markets. An additional objective was therefore to contribute to improving accessibility of the whole European territory through motorways.

The expansion of the European motorway network was accompanied by measures aiming at limiting the environmental impact of road traffic, in particular the introduction of stricter norms for engine emissions and significant R&D efforts in the development of new vehicle propulsion technologies, using less fuel as well as other types of fuels (hydrogen, electricity, biofuels). Other accompanying measures aimed at strengthening the development of Intelligent Transport Systems in a variety of fields, but mainly in order to improve the guidance of traffic with a view to reduce bottlenecks and to increase security.

The strategy considered that one of the main causes of traffic congestion was the superposition on the same networks (motorways, dual carriage ways) of long-distance and regional and local traffic. It therefore encouraged the lower-tier authorities (regions, municipalities) to promote public transportation and to improve secondary networks in order to divert as much as possible local and regional traffic from the motorways, in particular during the peak hours.

The key element of the strategy was the financing system. When the first estimates of the investment volume were realised (end of 2007), the figures obtained were much higher than those previously envisaged for the completion of the TEN-T (around 600 billion Euros). In addition to the projects of 'Community interest' which had a clear cross-border or transnational dimension, the strategy also included numerous motorway projects in highly urbanised and densely populated regions, because the reduction of congestion in these areas would be highly beneficial to long-distance transit transport of European significance. This is why the total investment volume estimated nearly reached 1500 billion Euros.

Needless to say that public resources alone would enable the implementation of only a tiny share of this investment volume. It was therefore necessary to develop a highly sophisticated system of financial engineering based on public-private partnerships. This made possible to maintain the principle of road pricing. Its objective was less to divert traffic from the motorways than to ensure the viability and profitability of investment projects. Tariffs for users were conceived as flexible and highly dependent upon the context. In the cohesion countries, EU subsidies (structural funds, cohesion fund) were used in public-private partnerships to reduce the level of tolls charges to users. This was considered as particularly important to ensure the viability of projects in countries with a low purchase power. In West-European countries, the level of EU subsidies was either very low or even non-existing, but the EU provided a public guarantee to loans in order to motivate banks, investment funds and other financing institutions to join the programme. The European Investment Bank also played an important part in the implementation of the strategy. Bonds were issued to mobilise a broader financial basis, both inside and outside the EU. A Regulatory Authority was set up, composed of representatives of the public sector (EU, states) and of the PPPs to monitor the implementation of the strategy, the economic viability and profitability of projects, the level of tolls and to provide advice and solutions to emerging problems.

The main idea was however to maintain road pricing at a moderate level in order not to divert traffic towards the secondary networks. There where EU subsidies were not available, national resources were injected into the PPPs, in order to limit the level of tolls. The system

of financial engineering also comprised an instrument of financial equalisation between the PPPs, making possible for the Regulatory Authority to transfer a certain amount of revenue resources from the most profitable PPPs to those which were facing difficulties in terms of viability, while maintaining moderate levels of tolls.

3.2.1.5 Implementation of the strategy

The first steps of the strategy consisted in the concentration of EU support to motorway projects, at the expense of other transport infrastructure, in order to accelerate the realisation of projects which were already in the pipeline. The development of new motorway projects, from the planning phase to the end of realisation was however very time consuming. The first projects envisaged in 2007/2008 were not yet concretely implemented in 2015. Almost a decade was devoted to the planning and construction activities before the real benefits of the strategy became noticeable. In densely populated regions, specific difficulties arose at the stage of planning new motorways. Strong protests were expressed by the local population concerned by the potential environmental impacts of the projects. Negotiations took a long time and numerous specific (and expensive) solutions had to be elaborated (underground motorway sections, specific equipments against noise etc.).

During the period before 2015, a number of projects which had been launched in the early 2000s were completed, but this was not sufficient to absorb congestion. The saturation of various major corridors increased, generating a series of problems. Long-distance traffic used more and more the secondary networks and night traffic of trucks became generalised. The environmental impact on densely populated regions was high. People and enterprises stated relocating out of the most congested areas. They chose locations with still satisfactory accessibility, but outside the densest areas.

After 2020, the speed of projects realisation increased and new motorway sections were opened to traffic every year. Only the most ambitious projects (basis tunnels under the Alps, the Pyrenees, the Carpathian mountains) needed more time for their implementation. In maritime basins, (Baltic, Mediterranean, North Sea, Atlantic, Black Sea), the new motorways reached most medium-sized and large ports, so that numerous new ferry lines were developed.

3.2.1.6 Impacts

- **Impacts on the transportation systems**

As indicated above, the real impacts of the strategy were noticeable only after 2015, while up to 2015, traffic flows had continued to regularly and substantially increase. Two phases can therefore be identified. Up to 2015, the transportation system in Europe worsened because of increasing congestion on a growing number of axes and corridors. After 2015, congestion progressively decreased, but to a lesser extent than expected, because the induction effect of new infrastructure on traffic generation went on increasing, in particular in the new member states. Traffic intensity (measured in tons x km or passenger x km) increased substantially because of higher trip generation and, in particular, growing trip lengths. European society became more traffic dependent: increasing individual mobility reflecting the preference for variety in leisure occupation, shorter working weeks and more frequent -although shorter – holidays with a larger transport content, multiple car ownership in households leading to greater freedom. In freight transport, the average volume or weight of consignments diminished, creating an increasing fragmentation of flows, including the growing incidence of direct home delivery from telephone and Internet purchasing. The progress of globalisation in the world production and trade system,

reinforced by increasing integration and regional specialisation in the European Union's Single Market, provided additional elements in the growing transport intensity.

By 2030, the traffic situation on major axes and corridors had improved, compared with the situation in 2010 and 2015, although a number of bottlenecks remained. Much worse was the situation on secondary networks. These had hardly been improved, because financial resources were concentrated on the motorway network. The general increase in mobility and transport intensity created serious congestion and environmental problems in wide areas of the European territory, also quite far away from the motorways.

- **Macro-economic impacts**

The macro-economic impacts of the strategy have been quite significant and they started rather quickly after the decision about the strategy was taken in 2007. The huge investment volumes carried out generated a large amount of construction works which in turn generated employment, turnover and tax revenue. Traffic demand being high, tolls revenue made possible the re-reimbursement of loans and the refunding of bonds without major difficulty.

Another dimension of the macro-economic impacts, which developed however only after 2015, was the reduction of congestion and the higher efficiency and productivity of transportation which acted economically as a reduction of transport costs in the whole production systems and therefore increased the GDP of the European Union and of individual countries. Along the same line, the improvement of accessibility of peripheral and landlocked regions contributed to integrate them better into the European single Market and to increase global European output. Positive macro-economic impacts were also noticeable in the sector of motor-car industries, including R&D and new technologies.

The positive aspects of macro-economic impacts were however somewhat outweighed by the increasing imports of oil in a context where the external energy dependency of Europe was seriously increasing.

- **Regional, environmental and territorial impacts**

Considered from a Europe-wide perspective, the strategy favoured in the long range the development of more peripheral regions and therefore, polycentricity. Discrepancies in accessibility were seriously reduced, even if the density of motorway networks remained much higher in the Pentagon than in European peripheries. The strategy made also possible the development of motorway networks linking various maritime basins and avoiding the Pentagon. North-South axes were built between the Baltic States/Poland and the Adriatic and Black Sea basins. East-West axes were strengthened linking the Atlantic/North Sea ports to the new member countries of central and eastern Europe.

At meso-scale, the situation worsened up to 2015. The number of congested axes and corridors increased, mainly in the Pentagon, but also in and around urban regions in more peripheral areas. Transit countries like Germany, Denmark, France, Switzerland were particularly affected. In the productive sector, increasing congestion constrained intra-sectoral exchanges, access to final markets as well as the just-in-time approach. A number of changes in the productive and logistic structures became necessary. Productive activities progressively left dense urban and metropolitan regions to relocate in intermediate regions in and around the pentagon, from where main markets as well as suppliers were still accessible through less congested main and secondary networks. As such strategies prove not to be sufficient, the splitting of production structures over large (sometimes Europe-wide) areas is progressively being given up by more and more companies. Main enterprises, subsidiaries and suppliers are being regrouped again in locations which are easily accessible

from each other. This evolution benefited to the economy of areas with intermediate centrality, but was detrimental for peripheral regions. It was also detrimental to main ports which had not sufficiently developed railways and waterways as hinterland connections.

As far as the population of dense urban and metropolitan regions as well as corridor areas is concerned, it was more and more inclined to move away. Most favoured locations in less congested areas were however locations near public transport stations. More and more retired people left urban and metropolitan areas to relocate in attractive rural areas.

After 2015, a number of improvements in the networks had considerable impacts, in particular in densely populated and congested regions, but also in the countries of central and eastern Europe. Thanks to the new motorways, the level of traffic congestion decreased in the English Midlands and the South-East, in the Benelux, in the Rhein-Ruhr and Rhein-Main regions, in the densely urbanised East-West corridors north and south of the Alps, in the corridor linking the Benelux to the Paris region, in the Rhone valley, in the corridors along the Mediterranean coast etc.

At local level, the crossings and access points of the modernised motorway network became preferred locations for new activities. Increasing rates of motorisation favoured however the progress of suburbanisation and dispersal of settlements. Congestion on secondary networks accentuated this trend, in particular in densely populated regions. Adjacent rural areas with less traffic density became attractive locations for both people and activities, provided reasonable access to the motorway network was ensured.

Impacts of the strategy on the environment have been far from positive. As far as the emission of greenhouse gas was concerned, the evolution went in a direction totally opposite to the Kyoto Agreement. Despite technological progress which significantly reduced the fuel consumption and gas emission of engines, the considerable increase of traffic flows, which had doubled and even tripled on numerous corridors by 2030, compared with the situation in 2005, resulted in strongly growing CO^2 and NOx emissions. Emissions were not limited to areas bordering the motorway networks. Increasing traffic and congestion on secondary networks disseminated emissions widely throughout the European territory.

In addition to gas emissions, the strategy generated important damages to natural areas. Because of protests from the population as to the location of new motorways, these were mainly built in rural and natural areas, where population density is low. A number of new motorways were also built in mountain regions, affecting the natural heritage of numerous valleys. Coastal regions were also damaged, in particular in Mediterranean regions, where the mountainous character obliged to build the new motorways rather close to the coastline, generating pressure on settlements and on highly valuable landscapes.

3.2.1.7 Final images

The scenario provides two different images:

- an intermediate image around the year 2015 with increasing traffic congestion, in particular in densely populated regions, resulting in deteriorated living conditions. Concentration of population and activities in and around the Pentagon had progressed. Areas with intermediate accessibility, adjacent to urban regions or not too distant from them were becoming prosperous in terms of business location, but were facing increasing land-use conflicts and emerging environmental problems. This included also the hinterland of main and second-rank ports.

- a final image around 2030 with quite different characteristics. Growth and wealth have progressed towards the European peripheries along the most important corridors, as a

result of increased accessibility through more developed motorway networks. In the countries of central and eastern Europe, only major corridors and related large cities (in particular in the western regions) have benefited from an increase in accessibility, while more remote regions in the east as well as rural areas largely dependent upon obsolete secondary networks remain weakly accessible. The volume of investments carried out has had a significant impact on the revival of he European economy. Economic development is widespread along the grid of the motorway networks, favouring the crossings and access points to motorways. Suburbanisation and dispersal of settlements have further developed. Secondary networks are quite saturated. The environmental impacts are strongly negative, both as far as emissions and damages to natural areas are concerned.

3.2.1.8 Main issues resulting from the scenario

The scenario shows which spatial evolutions would result if the projected increase of road traffic throughout the EU (demand projection) would be made possible through a substantial development of the motorway network throughout Europe. The scenario shows clearly that significant economic benefits would result from such a strategy, which would however be considerably outweighed by the intensity of resulting environmental problems. The scenario points out that benefits in terms of transport situation would not really emerge before 2015. In between, the increase of traffic congestion would however have wide territorial consequences: deterioration of the environment and quality of life, reduction of mobility, increase of transportation costs in production/distribution processes, changes in location patterns, both for enterprises and population and therefore impacts on inter-regional disparities. The scenario suggests the existence of traffic thresholds (and therefore of congestion thresholds) which are likely to generate 'chain reactions' in the behaviour of economic actors, in particular as far as location patterns are concerned. According to existing traffic projections, such thresholds could be reached on numerous corridors between 2010 and 2015, while the situation will improve afterwards when the implementation of the motorway strategy shows its first substantial results.

3.2.1.9 Impacts for EU policies

The scenario is based on the assumption that a considerable change takes place in the EU Transport Policy, backed by similar orientations in the transport policy of all member states. Based on alarming traffic forecasts, in particular as far as demand for road transport is concerned and considering the very insufficient results of the policy of 'sustainable mobility' carried out since the mid 1990s (promotion of environmentally-friendly transport modes), the EU decides in 2007 to implement an ambitious programme of motorway construction. Key instrument of this strategy is a sophisticated system of financial engineering based on public-private partnerships. The implementation of the strategy calls for coordination with EU regional and environment policies, in order to optimise the economic benefits (productivity of new infrastructure) and to minimise the environmental impacts (Natura 2000 Network in particular)

3.2.1.10 Summary

The scenario is based on the hypothesis that EU and national policies decide to make maximum use of the existing capacities of road transport infrastructure and to expand it, considering that modal split towards rail and maritime transport has not really been successful and that there is a clear trend in favour of road transportation in general, but in the new member states in particular. An ambitious motorway investments strategy is adopted in order to reduce and prevent congestion on the main European networks. Specific financial engineering based on public-private partnerships was developed. Considered from a Europe-wide perspective, the strategy favours in the long range the development of more peripheral regions and therefore polycentricity. At lower levels, a significant reduction of

traffic congestion can be observed, in particular in highly urbanised regions, accompanied however by a significant progress of suburbanisation. The impacts of the strategy on the environment are far from positive, with a strong increase in greenhouse gas emissions and with significant damages to natural areas.

3.2.2 Scenario 2: 'Decoupling economic development from the mobility of people and goods'

3.2.2.1 Scenario hypotheses

The scenario is based on a combined strategy which aims on the one hand at enforcing the provisions of the Kyoto Agreement and of the Göteborg Strategy (reduction of greenhouse gas emissions and further environmental protection) and on the other hand at moving the European economy towards more knowledge-based components according to the Lisbon Strategy. A clear complementarity exists between these two dimensions: decoupling economic development from the mobility of people and goods works undoubtedly in favour of the environment, but cannot rely exclusively on transport policies. It has to integrate economic policy elements along the lines of the Lisbon Strategy. Policy measures are taken to limit road and short-distance air transport and to promote alternative transport modes.

3.2.2.2 Driving forces

In the field of transport policy, the main driving forces are the policy measures taken at all levels to discourage the use of cars and trucks, both for long-distance and for regional and local transportation of people and goods as well as those taken to reduce air transport on short distances. Specific policy measures encourage and promote alternative transport modes with lower environmental footprint.

In the field of economic policy, a series of measures are taken along the lines of the Lisbon Strategy in favour of a competitive knowledge-based economy likely to develop more immaterial economic functions and to have a positive impact on the reduction of freight flows.

In the field of trends, the main driving forces are the continuation of the globalisation and European integration processes generating significant increases in transport flows.

3.2.2.3 Contextual elements of the strategy

The strategy consists of the implementation of decisions taken long before the year 2005, but which had not been successful earlier. This is the case for the Kyoto Agreement, the Göteborg Strategy and the Lisbon Strategy. Surveys and assessments carried out for the period 2000-2005 indicated that the reduction of greenhouse gas emissions in Europe had not been sufficient, largely because of the strong increase of transport flows. The Kyoto Agreement having been ratified, its enforcement called for efficient measures aiming at the reduction of greenhouse gas emissions.

A similar situation prevailed in the case of the Lisbon Strategy. The mid-term assessment carried out in 2004 clearly showed that progress of the European economy in terms of growth rate was weak, compared with that of other large economies (USA, China) and that the move towards knowledge-based activities was too slow. It was considered that Europe urgently needed acceleration in the process towards a more immaterial economy in order to

reduce the negative impacts of globalisation which materialise in increasing unemployment and enterprise relocation outside Europe.

This context led from 2005 onwards to a series of decisions related to significant changes in the EU transport and economic policy (including its industrial, technological and regional dimensions), along the lines of Kyoto, Göteborg and Lisbon. The decisions were prepared during the 2005-2007 period and their implementation started in 2008.

The EU policy measures were backed by similar initiatives within the member states, at the various politico-administrative levels. Respecting the principle of subsidiarity, the vertical harmonisation of policy measures resulted mainly from conviction and consensus.

3.2.2.4 Elements of the strategy

At EU level, the main measures taken in the field of transport policy concerned the revision of the TEN-T. A new list of priority projects was established, focusing on the development of the HST network, on the rehabilitation and modernisation of conventional railways, in particular in the new member countries of central and eastern Europe, on the promotion of rail, waterway and maritime freight transport, as well as of intermodal transport. Projects concerning motorways or related to regional air transport were excluded, with the exception of those which were already under construction. In addition to the budget of the TEN-T, resources from the structural funds and from the cohesion fund were allocated to the implementation of the revised list of priority projects. In the case of particularly large projects likely to generate revenue, EU resources were also used to support public-private partnerships. The volume of EU resources allocated to technological development and R&D in the field of new transportation systems and less polluting engines was significantly increased.

Joint agreements were concluded between the EU level and the member states concerning matters of national competence, but necessitating for efficiency reasons, a good harmonisation at EU-wide scale. In this context, it was decided to apply high levels of road pricing, not only on motorways, but also on numerous roads of national and regional importance, where the introduction of road pricing was technically possible. In addition to this, it was decided to increase taxes on fuel, gasoline and kerosene, which came above the natural price increase of crude oil. Specific taxes were also introduced on short-distance air transport.

It was agreed that the additional revenue from road pricing and taxes would be allocated to the development of public transport networks and systems and to the promotion of transport modes with lower environmental footprint (support to investments; application of low tariffs).

Finally, the EU and the national authorities decided to jointly organise large-scale awareness-raising campaigns about the negative environmental impacts of road and air transport, targeting both European citizens and enterprises.

The lower-tier authorities (regions and municipalities) were invited to promote public transportation at regional and local levels through positive measures (development of public transport networks), benefiting from subsidies of the EU and national levels. They were also invited to discourage motor-car traffic in cities through the introduction of high tariffs for motor-car parking in city-centres, while the park-and-ride systems were promoted.

The link between the new transport policy and the economic policy along the lines of the Lisbon Strategy was ensured by a strong promotion of ICTs and related services. The objective was not only to give impetus to economic development, but also, with equal

importance, to substitute e-services to physical mobility. Campaigns for the development of home-working ware also carried out. In this respect, specific EU actions were to define a regulatory framework for electronic communications, to encourage the spread of ICTs, to create conditions for efficient e-commerce and to support European leadership in mobile communication technologies.

The promotion of the knowledge-based economy implied also a number of other policy measures. These aimed first at boosting EU, national and private spending on R&D up to 5% of GDP. In this respect, one of the related objectives was also to make Europe more attractive for high-level researchers and to avoid that many young scientists continue to leave Europe on graduating, notably for the US. A system of mutual validation of national quality assurance and accreditation processes was developed, reducing the administrative obstacles to mobility of researchers in Europe. Measures were also taken to facilitate the entry of researchers and their dependants from outside the EU through simplified, fast-track work permit and visa procedures. The funding of research institutions and universities was reconsidered and substantially improved. Measures were taken to promote and strengthen the creative interaction between universities, scientists and researchers on the one hand and industry and commerce on the other, in order to drive technology transfer and innovation. The strategy included also measures related to education and qualification, aiming at adapting education and training systems for the knowledge society and at fostering lifelong learning.

3.2.2.5 Implementation of the strategy

The implementation of the measures decided in 2007/2008 was not immediate. Some measures could be implemented in the short-term, others needed a quite long period before they became effective. In fact, it was a process that developed and intensified during the period considered.

In the field of transport policy, the first measures to be implemented concerned the progressive increase of prices and tariffs: road pricing, taxes on gasoline, fuel and kerosene, tariffs for car parking in cities. Such measures, which were by far not popular and created numerous tensions, had a quite rapid impact on the behaviour of people and economic actors and influenced directly the transportation market. Their progressive intensification convinced the transport users that the new policy was long-lasting and that it was worth envisaging long-term solutions, notably in terms of locations, activities etc.

Among the changes which could be rapidly observed, there was in first place a more intensive use of public transportation, both at local/regional level and also for long-distance trips. The income of public transportation companies increased and they could invest more in expanding the networks and improving the quality of services. A second important change was the intensification of e-commerce, e-services and home-working. This contributed to significantly reduce mobility at local/regional level.

Modal changes were less rapid in freight transport. Although all manufacturing industries and trade companies had noticed a significant increase in transport costs for their products, modal changes, departing from road transportation, implied the availability of equivalent services in other transport modes or in the field of intermodal transport. Such services were not immediately available. Structural evolutions had to take place in the organisation of railway and maritime companies. Important investments were necessary in infrastructure development and modernisation as well as in rolling stock. A favourable factor was that the increase in costs of the road transport mode made the other transport modes more competitive and therefore profitable. After 2015, freight transport in Europe had taken a different shape. The share of road transport had started to decline, in particular for long-distance haulage.

Structural changes in the European economy were driven by both the progress of globalisation and the new economic policy. The importance of traditional activities, using heavy raw materials, declined significantly. This affected mainly the new member countries of central and eastern Europe, but also a number of regions with traditional manufacturing industries in western Europe. The European economy specialised more and more in products with high added value and technological content as well as in immaterial production. The requirements in terms of transportation were significantly modified. Speed, flexibility, reliability became very important factors. Capillarity in the final access to customers was also an increasing requirement. New transport services had to be created, in which logistics, combined and intermodal transport had a growing importance. High speed freight trains were operated, as well as high speed maritime transport.

3.2.2.6 Impacts

- **Impacts in the transport sector**

Up to 2015, the nature of transport flows did not change significantly. The impact was mainly concentrated on the volume of flows and on transport modes used. The increase of transport costs, which was soon observable after the new policy was adopted, had a rather quick impact on the volume of road passenger transport, which decreased. In general terms, the mobility of people also decreased. The period up to 2015 was more problematic for freight transport, because the transport volumes continued to increase in a context which was constraining in the field of road transport (higher costs, strong decrease of infrastructure investments). Traffic congestion on the road and motorway networks continued to increase during that period, although this was attenuated by the fact that more and more people used public transport and much less their motor-car for daily commuting and also for long-distance trips. This increased somewhat the capacity of roads and motorways for freight transport. Another factor which worked in the same direction up to 2015, was the lower level of economic development which resulted from the new transport policy in relation to freight transport costs.

After 2015, the transport situation became more sustainable. This resulted from a combination of various factors. The new policies in transport and economy had generated structural changes. The move towards a more immaterial economy has contributed to moderate the volume of freight transport flows. In addition, the nature of flows also had changed, with more products having lower weight and higher added value. A number of significant investments in transport systems had been carried out (infrastructure, rolling stock, intermodal facilities etc.). The HST network had strongly expanded, at least on connections enabling profitable services. In the UK, the Midlands as well as the cities of Edinburgh and Glasgow were connected. In the Iberian Peninsula, the HST network connected Barcelona, Madrid, Sevilla, Lisbon and Porto to the rest of Europe through two connections on both sides of the Pyrenees. In the Nordic countries, the HST triangle Copenhagen, Oslo, Stockholm was completed and connected to the rest of Europe through the 'Vogelfluglinie' bridge. The HST connection from Munich to Vienna, Bratislava and Budapest was in operation, as did the HST line from Berlin to Warsaw. Zagreb and Ljubljana were connected to Milan through Trieste and Venice. A number of HST connections had replaced former short-distance air connections. The public transport networks of metropolitan areas and medium-sized towns had been modernised and enlarged. The motorways of the sea had finally become a reality, thanks to new technologies in the maritime sector which made this transport mode competitive.

In the new member states of central and eastern Europe with more traditional manufacturing industries, specific problems arose because transport needs increased while the railway networks were obsolete and the motorway networks were weakly developed.

Priority was given to the rapid modernisation of railways and this factor played an important part in the development of long-distance rail freight transport and intermodal transport at Europe-wide scale, especially on East-West corridors.

At the end of the period considered (around 2030), the spiral of exponentially growing traffic flows had lost of its energy and the situation had stabilised in quantitative terms, while significant qualitative changes had taken place in the transport systems themselves.

- **Macro-economic impacts**

Various elements of the new policies had macro-economic impacts, sometimes in opposite directions. The increase of transport costs had negative macro-economic impacts for a number of years until the necessary structural adaptations in terms of production, locations, alternative transport systems etc. were made. This created difficulties for numerous enterprises for which transport costs represent a significant share of turnover and brought additional constraints to the existing challenges of progressing globalisation.

These negative macro-economic impacts were however progressively outweighed on the one hand by the important investment volumes made in alternative transport systems, which generated employment, tax revenue and progress in transport technologies and, on the other hand, by the emerging knowledge-based economy which generated numerous innovations and patents as well as significant amounts of added value in economic outputs.

At the end of the period considered, economic development was progressing at a satisfactory rate and the growth differential with the USA had become smaller, while the transport situation was under control. The decoupling strategy between economic development and the growth of transport flows, in particular on roads and motorways, had been rather successful.

- **Regional, environmental and territorial impacts**

At Europe-wide scale, the regions which were most advantaged (or less disfavoured) in economic terms by the new transport and economic policies, were those easily accessible by long-distance railways, HST, waterways and maritime transport. These are mainly regions with large metropolitan areas within the Pentagon, but also outside of it. In the European periphery, regions and cities with large ports were comparatively less disfavoured.

The regions most disfavoured were those the large-scale accessibility of which was largely dependent upon road and air transport. Numerous peripheral regions belonged to this category (Ireland, Scotland, parts of the Iberian Peninsula, southern Italy, Greece, northern periphery, eastern parts of the new member countries), but also a number of more centrally located large rural areas (such as the French Massif Central, the French and Belgian Ardennes), quite distant from main axes and corridors. In the new member countries, the new transport policy was a particular economic handicap in the short and medium-range. Economic development could not progress as strongly as expected, also because the penetration of the knowledge-based economy was less rapid than in Western Europe. The modernisation of the railway network and the development of intermodal and maritime transport progressively favoured the accessibility of large and medium-sized towns as well as the development of port regions.

All this resulted in an increase of disparities related to large-scale accessibility at European level and worked generally against polycentricity.

At meso-level, regions with dense railway networks or important commercial ports have been favoured. Intermodal platforms developed there, connected to the railway, waterway

networks and ports. Networks of towns and cities emerged under the effect of improved inter-urban public transportation. In the productive sector, the spatial de-concentration of manufacturing and service activities (back office functions) out of metropolitan areas slowed down. Activities concentrated in locations with good accessibility by railway, but also around large ports, along waterways etc. Important innovation-oriented clusters developed in numerous European regions, but mainly in the Pentagon. Migration of population towards rural areas (retired people in particular) did not significantly slow down (although dependence upon road transportation is higher in rural areas), because the price of dwellings in cities strongly increased (push effect). The major pattern of territorial evolution at meso-scale has been one of nodal densification along corridors.

At more local level, and in particular in urban areas, motor-car related suburbanisation slowed down. In the periphery of large cities and metropolitan areas, a concentration of residential and productive functions took place around the stations of public transportation networks. These networks were significantly expanded. The concentration of settlements generated strong increase in land value. Demand for housing in urban areas increased significantly and prices also, because commuting by car became very expensive. Urban derelict land was rehabilitated. There was also a strong demand for nature and recreation areas at immediate proximity of cities.

In remote or peripheral rural regions, small and medium-sized towns were much less prosperous. Being largely dependent upon road transportation, their attractiveness decreased. A number of them were negatively affected by the relocation of activities induced by the need to reduce transportation costs.

The new transport and economic policies were highly beneficial to the environment and quality of life, in particular in the long range. The level of greenhouse gas emissions was significantly reduced and natural areas were better protected against further developments of the road and motorway networks as well as against suburbanisation and dispersal of settlements. There was however stronger pressure from recreation and leisure activities on natural areas located in the vicinity of cities. Because of less widespread use of motor-cars in tourist activities, these tended to become more spatially concentrated. This was somewhat detrimental to the development of soft tourism and to rural areas which were used to draw additional income from their natural and cultural heritage.

3.2.2.7 Final image

In the long range (around 2030), the final image of the European territory shows networks of compact cities well interconnected through high-capacity and high-speed railways. These cities are surrounded by nature and recreation areas. Long-distance commuting by car to large cities has become the exception. Suburbanisation trends also have been strongly reduced.

Rural areas are generally less populated than they were in 2005, with the exception of those which are particularly attractive for retired people. Settlements in rural areas are however less dispersed, to take advantage of public transportation services.

Considered at a wider scale, disparities among European regions are stronger than in 2005. Growth has favoured the cities of the pentagon as well as a number of other large cities outside of it, in particular those with large ports or good railway connections at reasonable distance from main markets. Numerous regions of the European periphery have a weak development rate and even decline. The peripheral regions of central and eastern Europe are however less disadvantaged because of their extensive railway networks which have been substantially modernised.

3.2.2.8 Main issues resulting from the scenario and impacts on EU and other policies

The scenario is a policy scenario aiming at discouraging the development of road and short-distance air transportation through strong policies including a wide range of measures. It does not rely only upon transport policy, but also upon efficient instruments to implement the Lisbon Strategy, because transport policies alone will never achieve the decoupling between economic development and the growth of transport flows. The scenario shows that success in this field can be achieved up to a certain extent and in the long range if coherent and substantial policies are applied at all levels. As numerous items among the measures envisaged are not really popular (at least for some segments of the European population) the question can be raised in how far such a scenario is politically realistic. The scenario shows also that the impacts of such policies go far beyond the reduction of air pollution and greenhouse gas and the limitation of climate change. Impacts can also be observed on the relative accessibility of the respective European regions and therefore on the evolution of inter-regional disparities in Europe. In order to avoid negative evolutions in this field, transport and economic policies should be accompanied by other public policy measures, in particular in the field of regional policy (in order to counteract territorial imbalances), urban planning (in order to counteract land price speculation, to promote better integration of urban functions and to limit short-distance mobility etc.), governance (stronger cooperation between local authorities, administrative levels and sectoral administrations).

3.2.2.9 Summary

The scenario is based on a combined strategy which aims on the one hand at enforcing the provisions of the Kyoto Agreement and of the Göteborg Strategy (reduction of greenhouse gas emissions and further environmental protection) and on the other hand at moving the European economy towards more knowledge-based components according to the Lisbon Strategy. Policy measures are taken at all levels to discourage the use of cars and trucks, both for long-distance and for regional and local transportation of people and goods and to reduce air transport on short distances. Specific policy measures encourage and promote alternative transport modes with lower environmental footprint. The transport strategy is accompanied by measures of economic policy likely to favour the knowledge-based economy and to develop more immaterial economic functions. The implementation of the strategy shows negative macro-economic impacts in the short-term (increase of transport costs), but high competitiveness in the long-term. At Europe-wide scale, the regions most advantaged are those easily accessible by long-distance efficient railways, H.S.T., waterways and maritime transport. These are mainly regions with large metropolitan areas within the Pentagon, but also outside of it. The regions most disfavoured are those the national and European accessibility of which is largely dependent upon road and air transport, numerous peripheral regions belonging to this category. At meso-level, regions with dense railway networks or important commercial ports are favoured. At more local level, the evolution is in favour of compact cities, suburbanisation trends slowing down. The new transport and economic policies are highly beneficial to the environment and quality of life, in particular in the long range.

3.2.2.10 Possible ESPON Indicators for the transport scenarios

Numerous ESPON core-indicators can be used in the context of these scenarios, such as:

- Income per capita, GDP per capita
- Population growth
- Net migration rate
- Unemployment rate

- Passengers in airports
- Transport network by mode
- Transport node by mode
- Travel time by spatial level and transport mode
- Daytime accessibility by transport mode
- Network distance to linear distance ratio
- Proportion of main lines connected to digital exchange
- ADSL lines as a proportion of total main lines
- Proportion of exchanges with co-located equipment
- Availability of Internet services with local rate charges/unmetered access
- ADSL subscribers per 10 000 inh.
- Proportion of households with broadband Internet access
- ICT tele-communication
- Tourist capacity
- Market accessibility potential by spatial level and transport mode
- Travel time by spatial level and transport mode
- Travel costs by transport mode
- Average speed to markets
- Average time to markets
- Impact of accessibility change on GDP per capita
- Impact of accessibility change on Equivalent income measure of user benefits
- Impact of accessibility change on employment.

4. Thematic scenarios 'Energy'

Jacques Robert (Tersyn)

4.1 Scenario base 'Energy'

4.1.1 Present situation, trends and forecasts

4.1.1.1 EU growing external dependence in the field of energy supply

The EU is relatively poor in conventional energy reserves. However, this fact has not affected the rise in energy demand over the past decades and is not expected to act as a brake on consumption for the foreseeable future. As a result, Europe is increasingly dependent on energy imports. Looking at the situation for the various energy commodities, the situation is the following:

- the EU imports around 80% of its oil. With the foreseeable depletion of North Sea oil reserves and still growing demand, external dependence would rise, under baseline hypotheses, up to 90% by 2020. Main suppliers are presently OPEC countries.

- gas import dependence of the EU is presently 40%. It is expected to rise to 66% by 2020. Main suppliers of the EU are Norway and Russia. Although new suppliers are entering the market (North Africa, Middle East, Central Asia etc.), dependence on Russia is considerably increasing as a result of EU enlargement.

- as far as coal is concerned, the enlarged EU still has substantial reserves (UK, Germany, Spain, central and eastern Europe), but imported coal is far cheaper than domestically produced coal (four times cheaper in the case of German coal). Production in Europe is falling and is likely to do so, in particular in the new member states of Central and Eastern Europe. As a result, coal imports into the EU are increasing although demand is decreasing.

- Europe is poor in nuclear resources (uranium). EU demand for uranium has stabilised at about 20 000 tons per year. Future trends in demand are unclear, given the uncertain future for nuclear power in several member states. Demand for uranium in the EU will increase if demand for nuclear electricity significantly increases. This will create greater dependence on external resources (from Russia, Canada, Australia).

4.1.1.2 Strategic energy issues at world level

The increasing external dependence of Europe for its energy supply implies that strategic issues at world level are of considerable importance for the future of Europe.

In the world context, the most strategic energy commodity is oil and the issue is the evolution of the relationship between global supply and demand. As far as world oil demand is concerned, it is strongly growing under the influence of large emerging economies such as China, India, Brazil as well as of other developed economies like the USA. Presently, oil demand is higher than supply. This explains the sharp increase of crude oil price since 1999 ($9/barrel in 1999; $60/b by mid 2005). Constraints to the rise of present oil production (which amounts to 78 million b/d) are numerous: the steady reduction of large oil discoveries since the 1970s, the decreasing level of investments in oil search and

exploitation as well as in refining capacities, wars and conflicts etc. Looking at the future, the evolution of the oil sector is even more serious because of progressive depletion of oil resources. According to a number of experts, a geological process of oil production peaking at world scale is likely to happen between 2010 and 2020. This does not mean that oil resources will be totally depleted, but it implies that world oil production, after a period of 'plateauing' will regularly decrease, independently from the level of investments made to increase production. This process is related to the specific geology of oil fields and to the fact that the conditions of exploitation of remaining reserves are much more difficult and expensive than those which prevailed up to now. The combination of declining oil resources with regularly increasing demand at world scale is likely to generate extremely high oil prices and even oil scarcity after the oil peaking process has occurred. Because of the role played by oil and oil products in the European economy, the impacts of oil production peaking may be rather severe.

Gas reserves are, compared with oil, relatively well distributed around the globe. The former Soviet Union is the major source of gas reserves, with the Middle East a close second. Other major reserves are spread in Asia-Pacific, the Americas, Africa and Europe. Worldwide, the prospects for gas supply are relatively good in the short term with a depletion/decline point coming in perhaps 20 years or so. This will depend upon the rate of global gas consumption. In the long range (by the year 2030), however, gas production peaking at world scale will most probably have taken place and the situation will be similar to that of oil.

Almost 80% of world coal reserves are concentrated in North America, Asia-Pacific and the former Soviet Union. Reserves in Europe, based on caloric value, are estimated at 72 billion tons of coal units (of which 70% is hard coal). Coal reserves are being used at a far slowest rate than oil and gas.

Current annual world uranium is 31 000 tons, compared with needs of some 60 000 tons. Secondary supplies (stocks, military material, recycling) cover the gap. Since around 1984, substantial quantities of uranium, coming from inventories, USSR or CIS countries, or from uranium no longer needed for defence purposes, have been put on the market, resulting in an oversupply situation and a substantial price decrease. These secondary resources have been largely exploited and uranium price is likely to increase again. In addition, demand is higher than the production of conventional uranium at world scale, so that significant expansion of nuclear energy production would be confronted to limitations and obstacles in the medium range.

4.1.1.3 Potentialities for renewable energy sources

The contribution of renewables to energy production across the EU is around 6%, of which hydropower represents 4% (2/3). Renewable energy sources are currently unevenly and insufficiently exploited in the European Union. Some countries, such as Austria, Sweden, France and Italy have a large renewables sector. Some, such as Germany, have intensive programmes or legislation in favour of renewables and some have little exploitation of renewable resources. Outside the EU, both Norway and Switzerland have significant renewable resources, mainly hydropower.

Large-scale hydropower is the largest renewables producer. It is the best exploited and the most mature. Within the EU, hydropower supplies cover around 14% of electricity demand. Most economically feasible sites have been exploited in Europe. Reserves still exist in small-scale hydro (< 10 MW) for local decentralised generation. A growth of some 2500 MW is anticipated in the EU by 2010. Further potentialities exist in the offshore sector (wave and tide energy). Technologies still have to be developed.

Installed capacity for wind energy has more than doubled during the 1990s and the same happened over the past five years. There is potential for further strong growth. A quadrupling of market potential by 2020 is possible thanks to offshore installations, greater capacity wind turbines, large dispersed wind farms etc.

There is also significant potential for solar, thermal collectors which produce low temperature heat for domestic applications. Installed capacity is increasing, but paradoxically, more in the northern half than in the southern half of Europe. Photovoltaic electricity production is on a very small scale in the EU. Cost is a decisive factor. Installed capacity has not grown as quickly in the EU as in the rest of the world. It is however estimated that a significant market potential exists, as high as 2000 MW by 2010, compared with 200 MW in 1999.

As far as biomass is concerned, potential is very significant and there are numerous applications. Biomass is used for the production of heat and/or electricity, for instance in CHP plants (Combined Heat and Power). Biomass will also be more and more used to produce biofuels for the transport sector (mainly bio-diesel and bio-ethanol) as complement or substitute to oil products..

Geothermal energy depends on similar technology to the oil industry. 'Hot dry rock' technology aims at 'mining' heat of 200-250°C which is available in many places in the EU at a depth of 5000 m. The installed capacity in the EU has risen gradually in the 1990s and is likely to do so, but the market potential by 2010 is unlikely to exceed 2700 MW. As far as heat pumps are concerned, there is significant potential for the heating of dwellings and offices. It is however necessary to take account of the real energy efficiency of such technologies (ratio between energy produces to primary energy consumed), which is less favourable than the ratio energy produced/electricity consumed.

4.1.2 EU energy policy

The objectives of the EU energy policy are:

- to ensure security of the energy supply through managing the growing external dependence of the Union in this sector;
- to facilitate closer integration of the Community energy markets, so as to improve the competitiveness of European industry, without in any way neglecting the safety, quality and durability of energy equipment, or public service objectives;
- to implement an energy policy compatible with sustainable development objectives, particularly through more rational use of energy and the development of renewable sources;
- to promote research and technological development in the energy sector.

More specifically, the EU promotes both the development of alternative energy sources (renewables), of new technologies in the energy sector and of energy saving measures (programmes Altener, Save etc.).

Among the possibilities for curbing down energy demand, the strategies promoted concern the development of new generations of vehicles with higher fuel efficiency or with alternative fuel systems, the increase of energy efficiency in industrial plants, the reduction of energy consumption in buildings etc. The achievement of the reduction of energy demand depends upon the level of energy price. The current sharp increase of oil prices is particularly favourable to the implementation of energy saving measures.

The EU energy policy promotes and supports the development of all forms of alternative renewable energy sources (wind, solar, biomass etc.), both in the field of R&D (Framework programme, Altener etc.) and in the field of investments (structural funds).

EU support also addressed the development of emerging technologies. This is particularly the case for hydrogen and related fuel cell technologies which may have numerous applications, in particular in transport, heating etc. It is however essential to consider that hydrogen is not a new energy source, but a new energy carrier. Hydrogen production requires significant amounts of energy and environmentally-friendly techniques for mass production of hydrogen are not yet available. Significant R&D and experimentation are still necessary.

Other emerging technologies promoted by the EU are those of decarbonisation. New technologies are being developed for the capture and sequestration of CO2, which could have a significant impact on the ability to continue to use fossil fuels safely and cleanly. Fossil fuel use can be made cleaner and more efficient by improving the processes for electricity generation from coal. There are numerous technologies – at a different stage of development – which make coal more attractive as a fuel for electricity generation and thus are of relevance to the security supply debate. Furthermore, these technologies could open up new markets for European industry in other parts of the world.

The promotion of 'gas to liquid' technologies has the potential to reduce costs of transport over long distances by converting natural gas into synthetic crude (a middle distillate fuel). A new process adds oxygen to natural gas, thus producing synthetic gas which is then liquefied. The resulting crude can be transported via existing oil pipelines and is particularly attractive for diesel applications. It has the advantage over conventional diesel of far lower emissions.

Finally, the EU supports technological development in the nuclear sector, both in nuclear fission technologies and in thermonuclear fusion. Current technological developments relating to reactors concentrate on the simplification of systems and introduction of passive measures, under acceptable conditions of economic viability. Efforts to increase the reliability and safety of generators and to reduce the production cost concentrate primarily on water reactors. Other nuclear fission technologies are also being supported, such as Fast Neutron Reactors (FNR), High Temperature Gas Reactors (HTGR), Accelerator Driven Systems (ADS) with applications for the transformation of nuclear waste. Subject to technical breakthroughs, nuclear fusion could, in the very long-term (at least over 50 years from now), become an inexhaustible source of energy and reduce considerably the problem of nuclear waste. The development of this technology requires world wide collaboration between the most industrialised countries (ITER experimental project).

The Council Decision 96/391/EC of 28 March 1996 laid down a series of measures aimed at creating a more favourable context for the development of trans- European networks in the energy sector, thus creating the conditions for the development of co-operation projects within regions in different continents (mainly Europe, Africa and Asia). In this context some 74 projects of common interest have been identified. The European Investment Bank, the European Investment Fund, ECSC and EURATOM also provide financial support in this sector.

It must however be observed that EU energy policies, although acting towards the reduction of external dependence in energy supply, have so far never drawn the attention on the process of oil production peaking and about the tragic impacts which may result from it.

4.1.3 Main driving forces in the energy sector

4.1.3.1 Sharp increase in world energy prices (mainly oil)

The main driving force leading to a sharp increase in world energy prices is the emergence of a strong imbalance between energy supply and demand at world scale. This imbalance is caused by the cumulative impact of various factors:

On the demand side:

- the main factor of increase is the strong economic development of large emerging industrial countries, such as China, India, Brazil etc. Smaller industrialising countries also contribute to increasing energy demand. Insufficient energy savings in large industrialised countries (USA in particular) work in the same direction. Presently, global daily oil demand is at around 78 million b/d and is growing at 2.25% per year, which is far above the annual 1.4% which prevailed during the 1988-2002 period.

- demand for conventional primary energy sources is rising (oil and gas in particular). In the EU, this means an increase in imported energy and therefore an increase in external dependency as well as a greater exposure to the globalisation of the energy markets (competition with other large energy importers);

- in the EU, the transport and tertiary sectors are largely responsible for the increase in energy demand. The EU enlargement is likely to generate more intense transport flows and therefore higher energy demand.

On the supply side:

- in the short/medium term, the main factors of restriction are war and terrorism (Middle East, Nigeria), the policy of production monopolies (OPEC), economic troubles (Russia) etc.

- in the longer term (after the mid 2010s) oil production is likely to peak for technical reasons and to cause a disastrous disruption between oil supply and demand.

- in the EU, the contribution of renewable energy is still very modest (6% in total, out of which 4% originate from hydro-electricity). Prospects for a significantly stronger contribution of renewables in the coming decade are not encouraging, mainly because of the amount of investments necessary. The strong increase in oil price could however boost new investments in renewables;

- new technologies are presently being developed in the field of energy production, but they will generally need considerable time to become mature and operational (nuclear fusion for instance). Hydrogen is an energy vector and not a source of primary energy. Significant amounts of electricity are necessary to produce hydrogen.

- within the EU, energy market opening has associated a decrease in energy prices either for households or for industry. Most of the EU energy policy measures will impact territorial development through energy prices variation.

A logical consequence of increasing imbalance between energy supply and demand is the increase of energy price. This is already obvious in the oil sector. Gas prices, which are

indexed on oil prices, are progressively following the trend. Through substitution effects, other energy sources are also likely to become more expensive.

4.1.3.2 Technological evolution

The energy sector is subject to a wide range of technological evolutions which will have considerable impacts in the coming decades, both in the field of the modernisation of 'conventional' energy systems and in that of the development of emerging technologies. Numerous technological evolutions will take place in the field of renewable energy sources and their exploitation. It must however be considered that technological evolution will only be a partial response to the problems of growing imbalance between energy demand and energy supply which may result from oil and – at a later stage – from gas depletion.

4.1.3.3 Environmental regulations

The enforcement of the Kyoto Agreement will have important impacts on the energy sector, as far as the limitations of emissions are concerned. The use of fossil energy will be affected by the new Kyoto targets.

4.1.3.4 Evolution of the energy efficiency of production systems

The energy efficiency of the European economy (share of energy consumption in total GDP) has significantly improved since the oil shocks of the 1970s. This results from the adoption of energy saving measures and of energy efficient technologies. It also results from the structural changes in the European production systems (abandonment of heavy industries which are highly energy consuming and development of high-tech industries which produce higher added values with far less energy consumption. This trend is likely to continue and even to be accelerated. High oil price generates investments in energy efficient production techniques. It will also accelerate the structural transformation of the European economy towards amore technology and service-based pattern.

4.1.3.5 Climate change

Climatic conditions have important impacts on energy consumption patterns. Climate change with longer periods of high temperatures in summer time generate higher energy consumption for cooling offices and dwellings in a number of regions of southern and even central Europe . Climate change also has impact on energy production systems. Sustained drought in southern Europe has significant negative impacts on the production of hydro-electricity, because of lack of water in barrages. Acceleration of climate change will not be neutral in energy terms.

4.1.3.6 EU external context

The growing external dependence of the EU for its energy supply gives a new dimension to the EU external policy. Energy supply in Europe is becoming an integral part of geopolitical relationships. In case of oil depletion and scarcity, it is likely that international tensions will emerge. Peaceful solutions will have to be looked for at highest level.

4.1.4 Towards scenario hypotheses

A wide range of possible hypotheses for prospective scenarios can be envisaged in the energy sector, in particular as far as technological evolution is concerned. It must however be considered that the present period is characterised by considerable changes in energy prices (mainly oil), a factor which is likely to significantly modify the energy paradigm in

Europe. Territorial impacts of such a change will be considerable, because energy is a transversal factor which affects most functions reflected in territorial organisation. As oil price and availability will be the major driving force (or constraint) in the change of energy paradigm, it seems appropriate to develop scenario hypotheses along two alternative possibilities related to the oil sector:

A first possibility to be investigated is the steady increase in oil price resulting from growing imbalance between supply and demand at world scale, with the occurrence of the oil production peaking at a late stage (2025-2030), so that the largest part of the study period will be characterised by sufficient oil availability at high prices. In such a context, significant substitution possibilities will be developed (renewables etc.) and energy savings will be carried out with high priority. This will correspond to a 'smooth', but nevertheless substantial change in the energy paradigm;

A second possibility is that oil production peaking will take place at a much earlier stage (between 2010 and 2020), as expected by numerous experts. In this case, the 'transition' period (between now and oil production peaking) will be much shorter and a significant part of the study period (broadly between 2015 and 2030 and further) will be characterised by extremely high oil prices, but also by oil scarcity. There will be wide, negative impacts on the economy which, in turn, could have dramatic consequences on territorial organisation.

4.1.5 Information sources

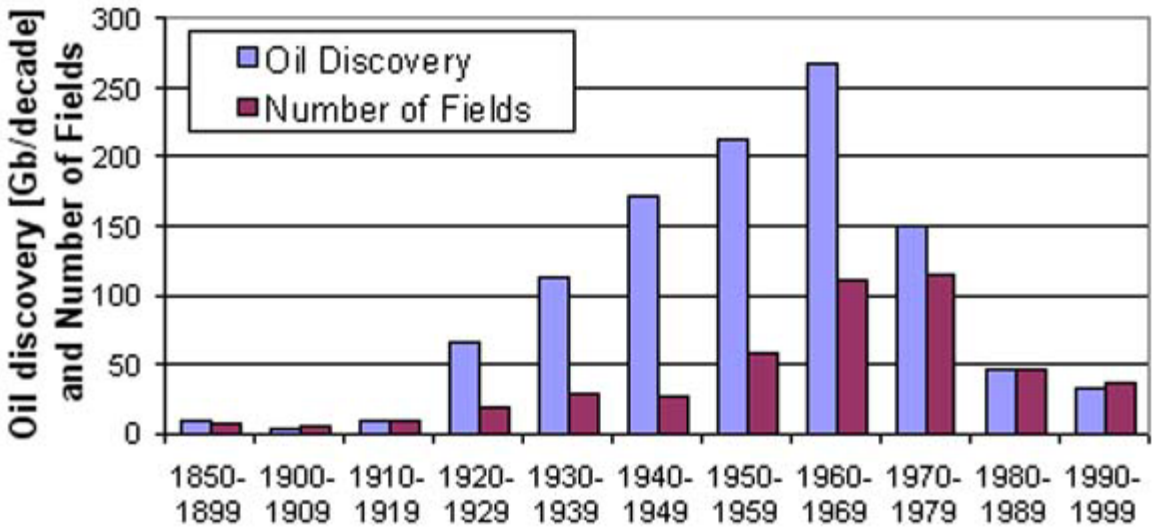
The scenario base is a compilation of information originating mainly from:

Green Paper. Towards a European strategy fort the security of energy supply. Main document and Technical document. European Commission. 2001.

World energy, technology and climate policy outlook. WETO 2030 study. European Commission. 2003.

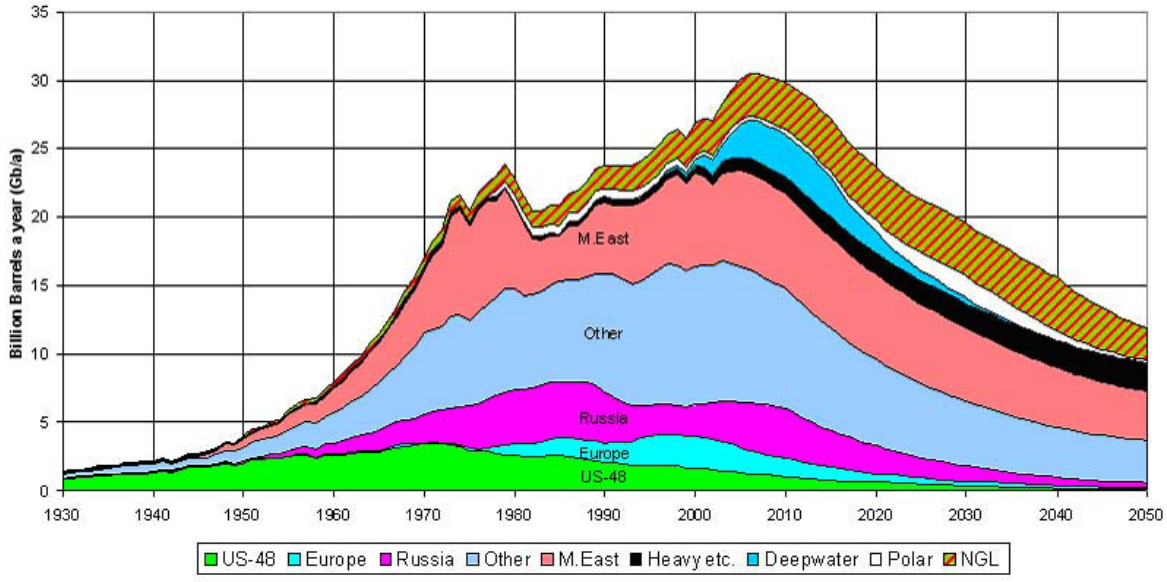
ESPON Study 2.1.4.: 'Territorial trends of energy services and networks and territorial impact of EU energy policy'. CEEETA. SIR. 2003.

Study on energy supply security and geopolitics. CIEP. European Commission. 2004.



Source : University of Uppsala (*Hydrocarbon Depletion Study Group)*

Figure 1 Giant oil field discovery per decade



Source: University of Uppsala (*Hydrocarbon Depletion Study Group)*

Figure 2 Oil and gas liquids – 2004 scenario

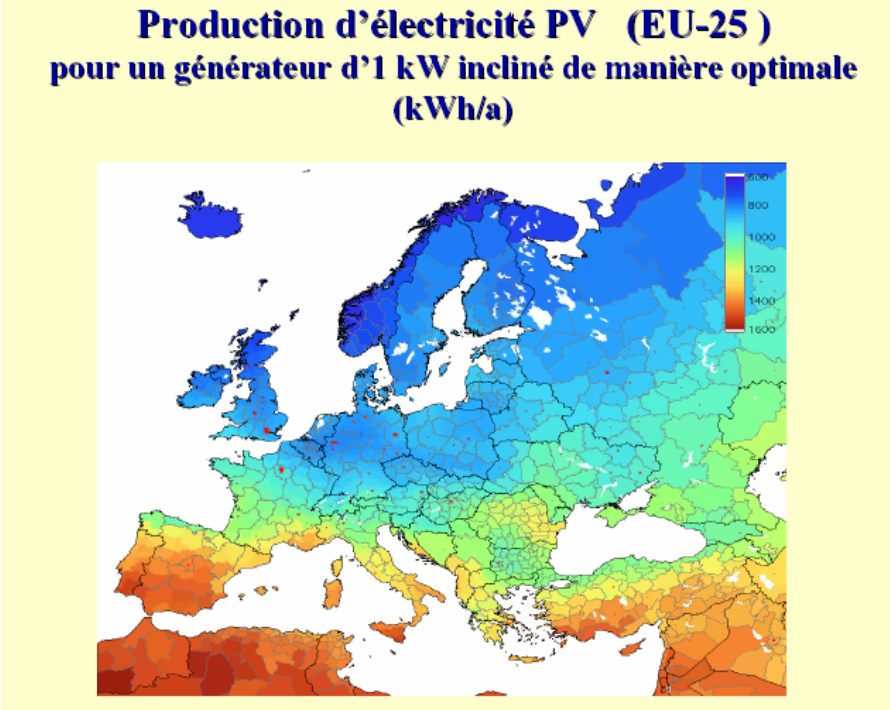


Figure 3 Potential resources in solar energy in Europe

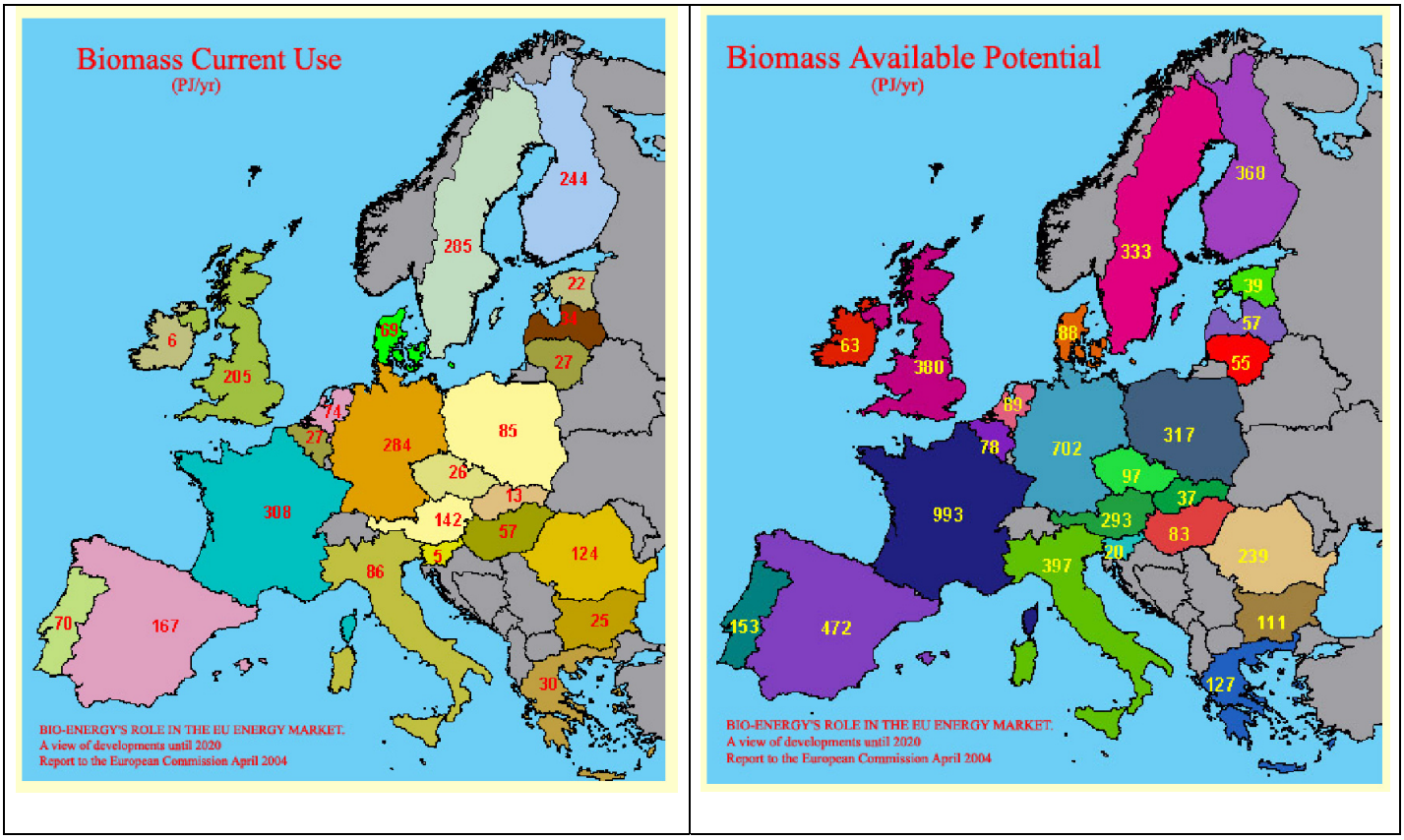


Figure 4 Biomass: current use and potential (Source: European Commission)

4.2 Scenarios

4.2.1 Prospective thematic energy scenario 'Europe in a context of high energy prices'

4.2.1.1 Scenario hypotheses

The main hypothesis of the scenario is that energy prices will be substantially higher in the coming decades than they were in the past ones, mainly because of growing imbalance between energy supply and demand. Renewable energy sources will strongly develop, but will only cover a modest part of needs. A number of conventional energy sources such as coal and nuclear energy will be reactivated and strengthened. New technologies making possible the production of large energy quantities at cheap price will not have become mature before 2030. It is however assumed that the oil peaking process will not take place before 2030.

4.2.1.2 Driving forces

The main driving force leading to a sharp increase in world energy prices is the emergence of a strong imbalance between energy supply and demand, in particular in the oil sector. This imbalance is caused by the cumulative impact of various factors:

- on the demand side, the main factor of increase is the strong economic development of large emerging industrial countries, such as China, India, Brazil etc. Smaller industrialising countries also contribute to increasing energy demand. Insufficient energy savings in large industrialised countries (USA in particular) work in the same direction. Presently, global daily oil demand is at around 78 million b/d and is growing at 2.25% per year, which is far above the annual 1.4% which prevailed during the 1988-2002 period.

- on the supply side, constraints are the fact that new giant oil fields, representing significant amounts of reserves, were not discovered over the past three decades, that oil reserves are mainly located in regions subject to political troubles and wars (Middle East, Central Africa) and that production monopolies such as OPEC pursue a policy of high prices. An additional short/medium term constraint is the insufficient capacity of oil refineries at world scale.

With increasing integration in energy supply systems, world energy prices will be more and more dependent upon the price level of the most volatile price factor: oil price.

4.2.1.3 The dynamics of high energy prices and their economic impacts

In the early 2000s, the price of crude oil had been regularly increasing. Up to the beginning of the war in Iraq in 2003, oil price increase had not been considered as a serious issue. On the contrary, it was the price level of the year 1999 ($9/barrel) which was considered as unusually low. The price level in early 2003 (around $25/barrel) looked more normal. During the second half of the 1990s, Europe did not draw significant benefits from the low price level of crude oil because the exchange rate between the European currencies and the USD (crude oil is paid in USD) was unfavourable.

In the early 2000s, the low growth rate of the European economy resulted less from the increase of oil price (which was compensated by the strengthening of the Euro in relation to the USD) than from the fact that precisely the re-valuation of the Euro became a constraint

for exports from the Euroland. The sharp increase in crude oil price, which started by mid-2003 to reach a first culmination at $55/barrel one year later and $60/b in early 2005 was taken seriously by economic operators for the first time since the oil shocks of the 1970s. Although Europe's economy was apparently in a better position than in the 1970s to absorb oil shocks (the energy intensity has significantly declined since the mid-1970s and the Euro has been regularly progressing in relation to the USD), growth rates of the economy remained low when compared to those of the USA and in particular of China and other emerging economies. Already at the end of 2004 it became clear that the time of cheap energy was over. Too many factors worked in the same direction: war and troubles in the Middle East and elsewhere (West Africa, Venezuela), increasing oil consumption in the Far East (China, India..), OPEC's policy etc.

The price of crude oil continued to increase with a number of ups and downs caused by speculation (hedge funds in particular) and other factors (irregular level of oil reserves in industrial countries, seasonal variations of demand etc.). By 2010, oil price had reached $ 85/b, by 2020 $120, to reach $ 200 by 2030.

The price of gas had followed a similar trend, partly because of automatic price indexation and partly because of a transfer of demand from oil to natural gas. Electricity had also become much more expensive. The development of energy transport infrastructure at EU level, including also better connections with external energy exporting countries and progress in energy-related technologies strongly contributed to the unification of the energy market in Europe and to the increase of substitution possibilities. This, in turn, resulted in widespread price increases among all energy sources.

The macro-economic impacts of this evolution have been significant. The increase of oil and gas price caused a deterioration of the trade balance of the EU, because of higher external energy dependency and higher energy taxes in Europe. Energy-intensive industrial activities became less and less competitive. A number of them were closed down. Others attempted to find a renewed competitiveness through relocation outside Europe. The growth rates of the European economy remained low, although the energy intensity went on diminishing. Economic interactions at global scale added to the pressure on the European economy. Although oil and gas producing countries accumulated enormous profits, these were only partially recycled in the global economy because of political tensions and troubles, in particular in the Middle East. In addition, the European economy also suffered indirectly from the impacts of high energy price on emerging economies which generally had very energy-intensive production systems and were even more energy-dependent than Europe was. Economic development in these countries became more difficult and European exports towards these countries were significantly affected. A major difference with the energy crises of the 1970s was that, in the new situation, energy demand did not stop growing at world scale, mainly because of the needs of large emerging economies. The imbalance between limited supply possibilities and steadily growing demand had a long-lasting character. In this context, reducing the European dependence on energy imports became an absolute priority. Both energy savings and the development of new energy sources and energy carriers (such as hydrogen) were politically strongly supported. Short-term measures for more efficient energy savings were adopted in various fields. Thermal insulation of buildings was improved, both in the case of dwellings and offices, in order to reduce the costs of heating in winter and of cooling in summer. Demand for smaller cars using less fuel increased and public transportation became very popular. More structural strategies were also developed and implemented. These required however significant investments and their impact became really substantial by the year 2010.

Investments in renewable energy sources expanded exponentially in a variety of fields. In the housing sector, solar energy was progressively introduced everywhere where benefits could be drawn from the reduction of oil, gas and electricity consumption. More and more

hot water was produced by solar thermal equipments, the use of which became rather widespread. The development of technologies in this field made solar thermal techniques attractive, even in regions with unfavourable climatic conditions. The profitability of photovoltaic techniques remained less attractive as long as the price of electricity was reasonable. The liberalisation of the electricity market was completed in the EU in the late 2000s and growing electricity demand brought with it strong price increase by 2010. It became then quite profitable for households to derive part of their own electricity consumption from photovoltaic sources.

Windmill parks were built, particularly in coastal and hilly landscapes. A number of conflicts arose with environmentalists who were in favour of paying greater attention to the protection of landscapes. New generations of windmills were developed with less environmental impacts, in particular as far as noise is concerned.

Biofuels became quite popular. The strong increase of oil price made them rapidly profitable. Remembering that Rudolf Diesel had demonstrated his invention at the World Show in 1900 in fuelling his engine with peanut oil, the promoters of biofuels started using plant oil, crop wastes and wood to run cars, buses and lorries. The amount of transport fuel coming from crops increased significantly, but has been constrained by the considerable size of agricultural areas necessary to produce reasonable amounts of biofuels. In the case of rape, an hectare of arable land cannot produce more than 1.45 tonnes of biofuels per year. A real competition started between those who wished to use arable land for fuel production and those who fought to maintain sufficient food production in agricultural areas. Environmental risks generated by intensive rape production were considered as serious enough to limit its territorial expansion. The EU target of having by 2010 6% of transport fuel originating from crops could hardly be reached for that reason.

Biofuels for transportation purposes have not been the only use of biomass in the energy sector. New technologies made also possible a more widespread use of wood and methane gas for heating, in particular in rural areas.

Geothermal energy was also more seriously developed. Its use has however been limited to specific locations where the underground has the properties required. In those places, efficient district heating systems could be developed.

In addition to renewable energy sources, new technologies made possible the use of new energy carriers such as hydrogen. After a period of intense R&D and experimentation activities, hydrogen-powered engines (fuel cells) became more and more used from 2010 onwards. The main problem which had to be solved was the creation of a network of hydrogen supply stations. The production of hydrogen requires however considerable amounts of energy (electricity, natural gas). As electricity demand had already significantly increased as a substitute to other energy sources, the price of electricity had also reached high levels. The same applied to gas prices. This became a major constraint to the generalisation of the use of hydrogen as energy vector.

The strong increase in electricity demand brought with it a passionate debate on the future of nuclear energy. Although largely rejected by the European population in the early 2000s, the expansion of the production of nuclear electricity found progressively more and more supporters in the late 2000s, in particular when new generations of nuclear power plants appeared (using MOX fuel or high temperature technologies). Because of the political sensitiveness of this issue, only a limited number of new nuclear power plants were built. The complexity of such projects was the main reason why they did not become operational before 2015. Phasing out strategies remained limited to a small number of countries which had to import more and more electricity from their neighbours. The increasing obsolescence of a large number of power plants became then a serious issue, not only in the new

member countries of Central and Eastern Europe, but also in the EU-15. By 2015, a number of decisions were pending in this field, but could not really be taken because of political resistance.

Simultaneously, R&D and experimentation efforts had also been concentrated on emerging technologies such as clean coal technologies (including gasification) and nuclear fusion. Most of these technologies are however promising only in the long term (in particular nuclear fusion which is still at the stage of basic research and will necessitate several decades of coordinated world wide efforts to be utilised as a significant source of energy). In the case of clean coal technologies, in addition to R&D efforts, the volume of necessary investments was responsible for the fact that these technologies could not become operational at a significant scale before 2015. The high level of investment costs involved was also a constraint for their competitiveness.

The use of traditional fossil energy sources, in particular coal, has not been abandoned. Coal production in the enlarged EU was re-activated there where the mines had not yet been closed and where conditions for exploitation were technically and economically acceptable. This was the case in a number of countries of Central and Eastern Europe as well as in the UK. In addition, larger quantities of coal were imported. Coal was mainly used to fuel conventional power plants and, to a lesser extent, for heating. New technologies made possible the reduction of emissions. More and more combined heat-power plants (CHP), fuelled with oil, gas or coal were also built, because of their high energy-efficiency compared with traditional plants.

During the whole period up to 2030, the definition and implementation of new strategies in the energy sector has been confronted with controversial environmental issues. On the one hand, the reduction of oil and gas consumption, the reduction of the energy intensity of the economy, the development of renewables and of biofuels (which do not reject through combustion more CO2 than the crops have absorbed from the atmosphere) and even the development of nuclear electricity were in line with the Kyoto Agreement and contributed to the reduction of emissions of greenhouse gas. On the other hand, a number of aspects in the new energy strategies have been a source of concern and even of serious tensions within the European society: the development of wind energy with its impacts on landscapes, the development of biofuels in relation to its competition with food production, the revival of coal use in energy production in relation to emissions and in particular the strengthening of nuclear energy production in relation to log-term aspects of human health and security.

Not only in Europe has the situation of energy supply generated impacts and tensions in the field of the environment. The fast-rising price of oil and natural gas has created a tidal wave of new power plants fired by coal. By the end of 2004, China was on track to add 560 coal-fired plants, India 210 and the USA 72. Altogether, those three nations were to add 325 000 megawatts by 2015, burning about 900 million extra tons of coal each year, in turn emitting 2.5 billion tons of CO2 into the atmosphere. By doing this, china and the USA took advantage of their huge coal reserves (equivalent to 250 years of supply in the case of the USA). In addition, approximately 60 other nations (the most important in this respect being Malaysia, Japan, Indonesia, Thailand, Turkey) have been developing in the same period another 350 coal-fired power plants. Needless to say that there was no chance to reach the norms of the Kyoto Agreement. On the contrary, in terms of global CO2 emissions, the situation in 2030 has strongly worsened when compared with that prevailing in the early 2005. The emergence of clean-coal technology was not rapid enough to prevent the worsening of the global environmental situation.

4.2.1.4 Regional and territorial impacts of high energy prices

At European scale, peripheral regions the economy of which was strongly dependent upon transportation, were losing competitiveness because no major substitution possibilities to road transportation were possible. Because of higher fuel price, EU and national policies maintained road pricing at a modest level. In some countries, the level of pricing was variable, according to the regions: it was higher in central and urbanised regions and lower in more peripheral and rural regions. Taxes on fuels were however not reduced, because of their income effect on national budgets.

The share of transport costs in the final cost of products originating from peripheral regions increased as did the final price of these products. This explains their loss of competitiveness. Most affected regions were those of Ireland, Scotland, the Iberian Peninsula, southern Italy, Greece, the northern periphery, as well as a number of peripheral regions of Central and Eastern Europe. Not only freight transport costs were affected by the increase of energy price, but also the costs of passenger transportation. Once again, peripheral regions were most negatively affected because of their higher dependency upon car and air transportation. Low-cost air transport could not be maintained over years and airfares progressively increased again. This trend worked against polycentricity at global European level. The gap between the welfare level of the Pentagon and that of regions outside of it widened. Location preferences were more and more given to regions from where the transport costs to markets and suppliers could be maintained at a reasonable level.

Not only peripheral regions with high transport costs were disadvantaged by increasing energy prices, but also regions with traditional industrial and quite energy-intensive production. Basic activities such as the transformation of raw materials (steel plants, aluminium production) and of intermediate products were particularly affected. A number of plants were closed down, others were re-located outside Europe. Many of the most affected regions belonged to the countries of Central and Eastern Europe. Western Europe was however not left out of this trend. A number of regions with industrial tradition, both within and outside the Pentagon, also lost activities and jobs.

Climatic factors also played an important part in the territorial impacts of higher energy prices at Europe-wide scale. Mediterranean and, to a lesser extent Atlantic regions, which are known for their mild winters, attracted more and more people, in particular retired ones from numerous European countries, in particular from the Nordic countries, but also from regions with a rather continental climate. Population ageing in Europe favoured this trend.

At intermediate scale (meso level), territorial impacts of high energy price could be observed both in the field of renewable energy and in the settlement structure.

A number of European areas were and still are particularly favoured as far as renewable energy is concerned. These are in particular the Mediterranean – and more generally – the southern European regions in the case of solar energy and the coastal and hilly regions in the case of wind energy and hydroelectricity (tide water turbines). Regarding biomass and the production of biofuels, regions with large and fertile agricultural areas or with wide forests were more favoured than others. More specifically, regions with a humid climate have been more involved in the production of biomass and of biofuels than regions prone to drought. Taking all factors together, the number of European regions with no resources at all, or with modest resources in the field of renewables, is rather limited, but disparities among regions in this specific field are significant. The availability of renewable energy resources (such as climatic factors) has not been by itself a factor of economic or demographic distinction, but in combination with other factors (economic endowment, quality of life, accessibility etc.), it certainly has been. Migration flows towards regions with

attractive climatic conditions or the development of tourist activities in these regions have brought with them wealth and jobs.

Regarding the impact of high energy prices on the regional and interregional dimension of the settlement structure, it could be observed that large and medium-sized towns were preferred to regionally dispersed settlements which are too much dependent – as far as mobility is concerned – from the motor car.

At local scale (micro level), similar trends could also be observed. A clear move away from suburbanisation and towards more compact cities has taken place over the decade. Settlement systems are more and more coupled with public transportation. Urban and housing policies have favoured more energy-efficient types of settlements and buildings, making possible additional energy savings and increased use of renewables. Large recreation areas close to the cities and accessible through public transportation were developed. More retailing shops within and close to housing areas have been opened, making possible purchasing a wide variety of goods without using cars. In place where geothermal resources are available, powerful district heating networks were implemented. Home working has been strongly developing, as well as other types of ICT applications such as the access to public and private services, e-shopping, educational and cultural programmes etc.

By 2030, the components of the European territory have substantially changed, compared with the situation in 2005. In general terms, the European economy had been handicapped by the increase of energy price and growth rates had remained modest. The internal structure of the European economy had however changed significantly. While energy-intensive production sectors had progressively been abandoned, the immaterial economy had strongly progressed and Europe has become the world leader in technologies related to renewable energy and to new energy systems. This compensated for the loss of more traditional activities. Just like after the oil shocks of the 1970s, the European economy had made a 'quantum leap' in qualitative terms. High energy price had worked more efficiently in favour of the Lisbon Strategy – as far as the structure of the European economy is concerned - than political prophecies and wishful thinking.

Regional disparities had increased, but not following exactly the pattern which prevailed before the increase of energy price. In general, peripheral regions became economically more disfavoured, with the exception of a number of southern – and to a lesser extent Atlantic – regions with good climatic conditions which attracted numerous people (in particular retired ones) and the related services, as well as small footloose companies, mainly of the ICT sector.

A stronger concentration of activities has been observed in the Pentagon which attracted more and more young qualified people from European regions where the economic prospects were less favourable.

A large part of rural areas, where soil and climatic conditions are adequate, were used for the production of biofuels, sometimes at the expense of food production. The landscapes of numerous coastal and hilly areas have been invaded by windmill parks. New conventional and nuclear power plants were built, often coupled with hydrogen production plants. In central and eastern Europe, the evolution of rural areas was in part less affected by high energy prices, because 'deep' rural areas were less dependent upon fossil energy and had been using traditionally renewable energy (biomass) and horse power in agriculture. In more 'modern' rural areas, in particular in regions where large parts of the land was in the hands of foreign investors, arable land was shared between energetic crops and intensive food production.

Settlement systems became again more compact and also more energy-efficient. Not only the building techniques were improved, but also the distribution of urban functions, so as to diminish the need for mobility. Public transportation systems became the real backbone of settlement expansion and re-structuration policies. Densification of settlements in coastal regions, in particular Mediterranean ones, became a real problem, adding to the landscape damages caused by tourist development in the 1970s and 1980s and by the development of windmill parks.

The increase of road traffic flows remained more modest than the forecasts of the early 2000s, mainly because of the increase of transportation costs.

4.2.2 Prospective thematic energy scenario 'Europe after oil production peaking'

4.2.2.1 Scenario hypotheses

The main hypothesis of the scenario is that a process of oil production peaking at world scale will take place shortly after 2010. This process which has been forecast by various experts of oil geology since the 1950s, will result in a situation where world oil production will start declining after a few years of 'plateauing', whatever the volume of investments will be to increase production. This will happen in a context of growing oil demand at world scale. Until the occurrence of the oil production peaking process, the context will be similar to the preceding scenario 'Europe in a context of high energy prices'. After oil peaking, the situation will be radically different, with not only extremely high oil prices, but also the possibility of oil scarcity at world scale (widening gap between supply and demand and therefore tensions among countries to access to oil reserves). Furthermore, not only oil production is likely to peak, but also gas production broadly 10 years later, thus during the 2020s. The scenario considers that oil and gas peaking will have very important macro-economic impacts in Europe and therefore also significant territorial impacts.

4.2.2.2 Driving forces

The scenario combines various types of driving forces. Those concerning the growing imbalance between oil supply and oil demand are the same as in the preceding scenario. Those related to the process of oil production peaking are of geological nature, combining the internal morphology of oil fields and the various techniques available for oil exploitation. The process of gas production peaking is similar, but of more simple nature, being mainly related to the level of gas pressure within natural reservoirs.

4.2.2.3 Towards the end of the oil era

It was not before 2004/2005 that Europe realised that the era of cheap oil (and therefore of cheap energy) was over. Up to 2010, the price of oil increased more or less regularly with ups and downs. The increase in the capacity of refineries as well as investments in oil exploration and exploitation after 2005 made possible to stabilise the price of crude oil despite steadily growing demand. This suggested the impression that the oil crisis was under control. In fact, it just made possible to exploit more rapidly the existing and non-expanding oil reserves.

Daily production of crude oil grew from 78 million barrel/day in 2005 to 85 million b/d in 2010 and then stabilised, although investments for oil exploitation and exploration remained sustained. The 'plateauing' stage of world oil production was reached, just as that of the north American oil production had taken place in the early 1970s and that of the north sea oil production in 1999/2000. It was exactly the same process. Only the scale had changed.

While the price of crude oil had reached $85/b in 2010 (the increase of hardly $30/b between 2005 and 2010 had been just as important as during the short period 2003/2005), it started to increase more strongly because of growing oil demand in a context of stable production. In 2015, it reached $200/b. After five years of 'plateauing' during which newly discovered oil fields came into exploitation and other ancient oil fields came to an end, daily world production started to decline. Up to 2020, the rate of decline was modest (daily production amounted to 80 million b/d in 2020). Production decline accelerated then, to reach 55 million b/d in 2030, while the world economy could have absorbed 90 million b/d. With nearly $600/b, crude oil had become a luxury product which could no more be used for routine economic functions.

After 2015, the steady degradation of the quality of oil produced could be observed in almost all regions having passed the peak and posed additional challenges for the existing downstream infrastructures, in particular refineries.

Up to 2020, natural gas was substituted to oil as a primary energy source in a number of uses such as domestic and office heating, power plants, petrochemical industries and partly transportation (busses, lorries etc.). While the fact that the discoveries of oil peaked in the 1960s has been an accepted knowledge, the fact that the natural gas discoveries peaked in the 1970s has been for a long time a well hidden secret. Already in the 1980s and 1990s, gas consumption was more important than gas discoveries. The peaking of gas production did not occur globally before 2025, but numerous individual large gas fields had peaked earlier. Europe had become strongly dependent upon gas imports and had to face the consequences of very high gas price as well as economic and political tensions on the international gas market.

Up to 2010, a number of adjustments were made in European production systems, starting with substitution processes in primary energy sources and including also energy saving measures in manufacturing industries up to the abandonment of very energy-consuming activities.

Real macro-economic impacts were however clearly perceived when oil production started to decline after the period of 'plateauing'. After 2015, oil became a scarce and expensive resource and the whole industrial economy which had prevailed during the 20th century, based on cheap oil, became suddenly obsolete. Impacts were numerous:

- in many sectors, industrial production which used oil not only as an energy source, but also as a raw material for the production of a wide variety of products (plastic materials, synthetic textiles, components for motor-cars, home and office equipments, telecom instruments, chemical and pharmaceutical products etc.) was severely affected. Oil was maintained as raw material only in the production of expensive products with high added-value (pharmaceutical products, electronic components etc.). In other sectors, production had to be deeply re-structured on the basis of both more traditional and very innovative products. The production of alternative basic products (metals such as steel, aluminium, copper etc.) is also dependent upon large quantities of energy. Production costs increased for almost all processed raw materials and basic products.

- in all sectors, production costs increased significantly, generating substantial inflation and affected employment severely. Very high unemployment rates became the rule throughout Europe, generating in the most affected regions, social unrest. Europe entered into long-lasting recession.

- transport costs became so high that 'global' production systems lost their competitiveness, not only in Europe but in most industrialised countries. Production systems were re-organised so as to minimise transport costs, both for intermediate and final products;

- industrial, energy-intensive agriculture became also less and less competitive. Agricultural production had to be re-structured, with less energy consumed by machinery, by the production of chemical fertilizers (ammonia etc.) and by final transportation of food products. The production of biofuels became a priority. Areas which had previously been left out of production through set aside measures were again cultivated, as far as soil fertility and climatic conditions enabled it.

- despite the recessive context, some sectors strongly developed, in particular all those related to alternative energy systems, telecommunication services, new ways of life resulting from the new context, new materials etc. These sectors generated numerous employment opportunities, but not sufficiently to counteract new unemployment generated by the economic recession.

The new member countries of central and eastern Europe were more severely affected because the energy efficiency of their economies was lower and their production structures were characterised by a higher share of low to medium technology activities when the economic recession started after 2010. Furthermore, they had largely abandoned the exploitation of their coal reserves and replaced coal by the import of natural gas. The needs for adjustment were extremely high while resources to implement them were limited.

The new situation had also considerable geopolitical impacts. In the Middle East, oil and gas exploitation took place more and more under military protection in order to prevent sabotage and other terrorist acts. Most sensitive elements in terms of security were the oil and gas pipelines, as well as ships transporting oil and gas.

Tensions between countries and groups of countries were significant, in particular East-West tensions between the large energy consumers. The terms of numerous long-range bilateral agreements on energy supply, which had been concluded before 2010, could not be respected because of price increase, oil scarcity, international competition and own needs of various oil and gas producing countries. This was particularly the case between the EU and the Russian Federation, and in other cases as well. Speculation, short term interests' coalitions became generalised.

Developing countries and emerging economies were particularly suffering from the scarcity and high price of oil, because their productive systems remained quite energy-intensive. Most of them were too weak to play a serious part in the international competition for oil and gas reserves and, more generally for energy resources, considering the new features of that competition, with its military and strategic aspects. Only those countries with large coal reserves could draw benefits from the situation, using a part of these reserves for their own needs and exporting another part at high price towards the developed world.

In a context of increasing tensions, the EU's strategy was to strengthen and secure its partnerships with its immediate neighbours producing energy, in particular around the Mediterranean (Algeria, Libya etc.).

4.2.2.4 Regional and territorial impacts

The oil shocks of the 1970s, which could be absorbed through a reasonable amount of economic adjustments, were only modest economic events compared with the situation prevailing from the mid 2010s onwards. The main consequence was a disruption of the globalisation process.

At European level, the functioning of the Single Market was severely disturbed. Long-distance economic exchanges of goods were decreasing. This affected not only heavy products with low added value, but also a variety of consumer and investment goods (food products, equipment, machinery etc.). Not only intra-EU exchange flows decreased, but also EU's imports and export flows. In addition to the increase of transport costs, the general recession was responsible for this. Europe had to significantly re-organise its economy on a more self-sufficient basis. Relationships between the pentagon and the peripheries became less strategic.

The new paradigm was a re-organisation of production and consumption systems at meso-scale, in order to minimise transport costs. Regional specialisation at European scale lost of its importance. Heterogeneous production systems developed at meso-level. Large urban concentrations became again more dependent upon the surrounding rural areas. A revival of poly-cultural and more labour-intensive agriculture could be observed throughout Europe, combined with the sustained production of biomass for energetic purposes (biofuels etc.)..

Numerous urban citizens who became unemployed in the context of the general recession, moved towards rural areas in order to develop a more self-sufficient way of life (family agriculture, energy production from biomass, development of endogenous resources etc.). Not only regions with favourable climatic conditions benefited from this trend, but also a number of remote rural areas where agricultural and other activities had previously been more or less abandoned. This contributed also to diversify the demographic structure of these rural areas prone to strong population ageing and to depopulation trends.

In terms of energy production, regions with still exploitable fossil resources (coal, brown coal, peat etc.) were again brought into exploitation. Technologies for using these fossil resources were further developed in order too increase both the environmental protection and the energy-efficiency. The environmental debates which strongly developed before 2015, were attenuated after the oil production peaking by the new situation of energy prices and emerging scarcity. Less resistance was expressed as far as the development of nuclear energy, biofuels and wind energy is concerned. A real conflict of interest emerged however between the production of biofuels and food production, because food production became again a strategic factor. Solar energy systems were very widely developed and implemented throughout Europe. In general, the environmental context worsened in a number of fields (for instance through the intensive use of coal and brown coal, through the proliferation of wind mills etc.); but it improved in other fields (through the reduction in intensity of traffic flows, through the increased use of public transportation, through the development of solar energy etc.).

Large cities became less and less attractive, because high unemployment generated security problems and social tensions. The most distant suburban areas were abandoned by a large part of the population of working age and were left to retired people with low mobility. Medium-sized and small cities were favoured for a number of reasons, among which the need to reduce expensive daily mobility.

Long-distance mobility for recreational purposes (implying the use of cars or airplanes) had been progressively given up, not only because of transportation costs, but because of the reduction of the purchase power. Stronger pressure on recreation areas more easily accessible from large towns was generally observed.

After more than a decade of chaotic re-structuring and re-organisation in the new context, Europe was, by the year 2030, progressively adapting to new forms of living and working. The organisation of economy and society has radically changed. The territorial image of Europe by the year 2030 was again quite different from what it was in 2015. On the one

hand, the economic depression had left serious damages in a number of regions where urban population had partly moved towards other regions and partly moved towards rural areas. On the other hand, the excesses caused by rapid globalisation in the early 2000s have slowed down, limiting congestion in transportation and the de-structuration of productive systems (agriculture, manufacturing industry). Concentration trends within the pentagon had slowed down, and even reversed to the benefit of less urbanised regions and of areas with favourable climatic conditions. A number of remote rural regions were re-populated on a self-sufficiency basis. The organisation of economy and society at meso-scale (regional and interregional areas, including those with a transnational dimension) had progressed. By 2030, Europe was still extremely vulnerable, but it was progressively moving towards more sustainable forms of development which were very different from those envisaged in the 1990s and early 2000s.

In the countries of central and eastern Europe, more severely hit by the requirements of the adjustment process, stronger pressure was put on rural areas, first because rural employment was higher than in western Europe when the economic recession started and second because unemployment in large cities grew more strongly, causing migration towards rural areas, in a similar way as in the early 1990s when the breakdown of planned economies took place. The 'deep' rural areas were however less affected by energy issues, because they were traditionally less dependent from hydrocarbon fossil energy, relying more on renewable energy sources.

4.2.3 Main issues resulting from the scenarios

Both scenarios show that the era of cheap energy is over and that Europe will face very important challenges to ensure its energy supply. The first scenario (which is the most optimistic or the less pessimistic) calls for stronger policies in the field of energy savings and for the accelerated development of renewable energy sources. It also calls for settlement and transport systems less dependent upon the road transport mode. The increasing territorial imbalances will also have to be addressed by public policies in a context of low economic growth. The scenario indicates that more expensive energy may generate on the one hand benefits for the environmental quality (solar energy, biomass, more sustainable transport modes, more compact cities), but may also have detrimental impacts, for instance if conventional primary energy sources such as coal continue to be used or are even expanded in energy supply. A strong political debate will develop about the necessity or not to strengthen nuclear energy production (new generation of nuclear power plants).

The second scenario raises different issues as soon as the process of oil (and later, gas) production peaking has taken place. It does not eliminate the policy requirements suggested by the first scenario, in particular as far as the accelerated development of energy savings and of renewable energy sources is concerned. It shows however that renewable energy sources and the reactivation of conventional energy sources will not be sufficient to cover all energy needs and that extremely high energy prices are likely to generate a severe economic recession. Furthermore, strong competition will develop in rural areas between the production of food products and that of energy products. The situation will be a completely new one, being very chaotic, with numerous tensions inside and outside Europe. The main objective of the scenario is less to provide a precise description of this situation and of its evolution than to raise awareness about the occurrence of oil peaking (which will anyway happen; the only question is when?) and about its dramatic impacts.

4.2.4 Impacts for EU policies

As far as the first scenario is concerned, EU policies in transport, energy, regional development and environment will be primarily addressed (energy savings, promotion of renewable energy sources, environmental constraints, territorial imbalances).

In terms of policy implications, the simple fact that oil peaking will anyway occur (most probably before 2030 but possibly after) should also lead European political authorities to immediately start massive R&D programmes in order to investigate in depth the potential impacts of such a situation and to develop substitution fuels and to promote alternative systems (mobility, transportation, heating, industrial production). Another objective of the scenario is to draw the attention on the relationships existing between the systems of energy supply and the organisation of economy and society in its territorial dimension. Numerous public policies will be addressed by the occurrence of oil and gas production peaking. If one assumes that the strong economic recession and related troubles will have no fatal impact on the existence of EU institutions, EU policies such as Transport, Energy, Environment, Regional Policy, CAP, External Relations etc. will be concerned and will require significant adaptation. Further EU enlargement processes will probably be stopped after oil production peaking, because of political and economic tensions resulting from the recession.

4.2.5 Indicators

Numerous ESPON core-indicators can be used in the context of the scenario, such as:

- Income per capita; GDP per capita;
- Productivity;
- Net migration rate;
- Unemployment rate;
- Daytime accessibility by transport mode;
- Travel costs by transport mode;
- Impact of accessibility changes on GDP/capita;
- Impact of accessibility changes on unemployment;
- R&D expenditure;
- Electricity production by power source;
- Final energy consumption by energy type and consumption sector;
- Energy prices for industry

4.2.6 Main ESPON studies useful for the elaboration of the scenarios

Valuable information can be derived mainly from two ESPON studies:

- ESPON study 2.1.1.: Territorial impact of EU Transport and TEN policy;

- ESPON study 2.1.4.: Territorial trends of energy services and networks and territorial impact of EU energy policy.

4.2.7 Summary

The evolution of energy prices (in particular oil) over the past years indicates that there is a significant change in trends and that high energy prices will have in future a sustainable character. The prospective (roll-forward) scenarios aim at investigating the macro-economic and territorial impacts of the new trend, taking as assumptions that oil prices (and that of other primary energy sources as well through substitution effects) will continue growing more or less regularly but substantially. The first scenario 'Europe in a context of high energy price' assumes that the process of oil peaking will not take place before 2030, but that oil price increase will nevertheless be sustained and substantial until then. Numerous adjustments will have to be made in the economy and their territorial impacts will be significant (less polycentricity, more compact cities, decline of the importance of road and air transport). The second scenario 'Europe after oil production peaking' assumes that oil production will peak around the mid 2010s (followed by gas production peaking around 2025), despite significant investment to increase production. In a context of steadily growing oil and gas demand, Europe will be confronted to a serious economic recession. The territorial impacts will be different from those suggested by the first scenario, with stronger pressure put on rural areas and a loss of attractiveness of large cities related to increasing unemployment and social tensions. In both scenarios, the new member countries of central and eastern Europe will be more severely hit by the new energy context.

5. Thematic scenario 'Economy'

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5.1 Scenario base – Economy

5.1.1 Present situation and trends

5.1.1.1 Current state of affairs

Europe is one of the developed regions of the World where the level of per capita income is more than three times higher than the World average. But, taking into account the entire ESPON space, it is only 70% of the US level and lower than that of Japan. The desire to improve European economic performance has driven EU policy over a long period and has led to the Lisbon process at the beginning of the current decade. The US achieves higher per capita GDP through both higher labour productivity and higher employment input. This should imply that there is room for the EU to grow faster than the US through the assimilation of existing technology and organisational practices and through increasing activity rate. But convergence came to an end at the beginning of the 1980s and has remained unchanged since. Productivity increased more dynamically in Europe, but it was 'compensated' by weak employment performance and falling working ours. By 2000, about one third of the difference in per capita GDP can be attributed to lower European labour productivity, one third to fewer working hours and one third to lower employment rates. In 1970, all of the difference could be attributed to lower labour productivity.

Contrary to the post-war period where growth and catching up with the US could largely be achieved through factor accumulation and imitation, innovation at the frontier has become the main engine of growth. This in turn called for new organisational forms, less vertically integrated firms, greater mobility both intra- and inter-firm, greater flexibility of labour markets, a greater reliance on market finance and a higher demand for both R&D and higher education. However, these necessary changes in economic institutions and organisations have not yet occurred on a large scale in Europe and, in addition to the problem of low demand in Europe, it is this delay in adjusting the institutions, which accounts partially for Europe's growth deficit.

5.1.1.2 Current territorial differentiation

At the beginning of the modern age, economic disparities within the regions of Europe were rather moderate. The overwhelming majority of the European economic landscape was agricultural. Here disparities depended on the geographic conditions, the quality of the soil and on the density of rural population. Disparities began to increase with the advent of industrialisation.

After the Second World War, regional concerns moved on to the policy agenda. There were many reasons for this. One was the increasing emphasis across Europe on equality issues and questions of redistribution. At the same time, the severity of the regional problem increased in many countries, with moves away from agriculture and downturns in traditional

heavy industry resulting in both unemployment in problem regions and significant migratory flows to major urban centres. The result was the emergence of a regional policy in the 1950s in a political and social climate where government was considered to have an important role in redistributing economic activity. The central pre-occupation of regional policymakers during this period was convergence.

The economic climate changed markedly from the start of the 1970s, starting with oil crises. Western Europe encountered a long-term slowdown in economic growth, with sluggish increases in productivity, inflationary pressures, restricted investment, persistent widespread unemployment and pressures on state budgets. The political agenda moved against active government intervention, especially regarding direct subsidies to firms.

Since the mid-1980s, new concepts of regional development began to emerge. The competitiveness of economies was increasingly attributed to the ability to innovate. Technological and organisational changes were altering the way in which companies organised their activities, both internally and with suppliers and customers.

The challenge for regional development has been to respond to the increasingly complex map of regional and local problems. The policy response has been a new type of regional policy concerned with the strategic management of regional development. The most important part of this new policy has been the reform of EU level regional policy and the reform of the Structural Funds in 1988-1989. With this reform, the European Union seriously embarked on a regional cohesion policy to reduce these disparities.

However, significant disparities remain: even where catching up is occurring relatively fast, the full process can take a generation and in new member countries much more. In addition, although most regions may experience at least some convergence, their performance varies widely.
The situation regarding unemployment is even less positive. Unemployment in the EU25 hovers around 10%, which is roughly equivalent to 20 million people. Unemployment is concentrated in some regions, while others are hardly affected. The closing of the GDP gap that has occurred in the last one and half decade in the less developed regions is predominantly due to increases in productivity growth, rather than higher employment.

5.1.1.3 Major future trends

Among the several trends observable in the European economy, we have selected three major themes for closer examination.
1. Globalisation and internationalisation of the European economy;
2. Demographic developments;
3. Information and Communication Technologies and increasing income gaps in European society.

5.1.1.4 Globalisation and internationalisation of the European economy

In the last decades, the expansion of international trade and international investment far outpaced the growth of output and income. This expansion is caused by decreased transaction costs. On the other hand, technological improvements have led to significantly lower transport and communication costs. On the other hand, successive multilateral agreements have significantly brought down the barriers to trade. Clearly, countries have become more integrated in world economy during centuries. But this has not been a continuous process.

The WTO member states have removed a number of major trade barriers in manufacturing, while the Single Market Programme of the European Union has gone far beyond that by

removing many other trade barriers through the establishment Community wide standards and combating market-disrupting practices like state aid. This does not imply that integration cannot proceed much further. National borders still exert a large impact on trade. The creation of a single currency in the European Union may help to make borders less important as barriers of trade – something that has not yet fully materialised

There are, however, also uncertainties concerning the further liberalisation of world trade. One of the uncertainties for the future is whether the WTO negotiations will eventually come to a successful conclusion. The other major uncertainty is the volatility of international financial markets. Today huge flows of money move across the globe and react to even the smallest differences in profitability. The flows of short-term capital can suddenly change direction and lead to wild fluctuations in exchange rates.

In any case, as the results of project 3.4.1 have shown, the European economy is still very introverted, with the total of exports plus imports from outside the ESPON space representing less than 15% of GDP. Considering that trade is measured in prices and GDP in value added, one can safely conclude that less then 10% of the GDP of the ESPON space is traded with the outside world.

5.1.1.5 Demographic developments

The demographic challenge of the future finds its roots in the past. It is related to the 'baby boom' following the Second World War and a structural decline in fertility rates thereafter. In the next ten or twenty years, the share of the population above 65 years will be much higher than it is today. Hence, the old-age dependency ratio will more or less double in the next 30 years.

Ageing is first and foremost a problem of distribution between young and old generations, and this has clear economic ramifications. Unless productivity rises significantly or other forms of taxation (on other revenues than labour) are put into place, the tax burden of the young working generations will rise, sometimes dramatically. The estimation falls into the range of 3-5 % of GDP in the majority of EU countries. The problem of an increasing tax burden on young working generations is reinforced by an other factor: namely increasing public expenditure on health care. Considering that old people 'consume' the most part of health care services, the increase in health care expenditure will be in the range of 1-3 percentages of GDP between 2000 and 2030.

5.1.1.6 Information and Communication Technologies

The growing importance of knowledge for economic development will accelerate the structural change of the economy. *New, knowledge-based sectors*, for example, bio-, nano-, material- and ICT, will significantly influence the economic growth and productivity growth, whereas the *'old' branches* will undergo either a deep restructuring or a decline in the course of globalization pressure. The impact of the knowledge society to a large extent does not result from few high tech sectors, but more from the *use of the advanced technologies*, developed in the leading high tech-branches, *in all sectors of the economy*.
During recent decades low-skilled wages have lagged behind high-skilled wages in a number of countries, while the unemployment rate among the low-skilled has risen more sharply. This divide between skill levels may intensify in the coming decades. Changes in technology – especially the widespread application of ICT – could raise the demand for skilled workers, raising the skill premium and, thereby, increasing income inequality.

5.1.2 Existing relevant EU policies

There is no economic policy conducted at the EU level as such. Instead, there are various policy sectors and policy ambitions that are directly related to regulating or bolstering the European economy. The Lisbon Strategy, first articulated in 2000, is a good example of a Community wide economic policy objective. Implementation of this strategy will transpire via various sectors, the most important being regional policy, R&D and competition policy.

5.1.2.1 Regional policy

Regional policy is one of the oldest policy sectors of the EU. Although the aims of regional policy have changed over time, the primary objective has been to reduce regional disparities and stimulate employment in order to allow the different regions in Europe to compete on an equal footing in the common market. At present, it commands the second largest budget of the EU (after the agriculture) and issues subsidies in the form of co-financing for mainly infrastructure, land development and human resource development. It is difficult to quantify the physical impact of regional policy, due to a problem of isolating causality, but anecdotal evidence does seem to suggest an impact on governance — cross-border cooperation has become more common, as has attention for sustainable development. A positive economic development of recipients is generally acknowledged (job and GDP growth). Currently, the line set out for the next structural funds period (2007-2013) shows some more inclination to address more Lisbon-based objectives (Competitiveness Objective). In addition, pressure from affluent member states to reduce budgets and increase effectiveness is also manifest. This may pave the way for employing the structural funds as a means to implement the Lisbon strategy.

5.1.2.2 R&D policy

European-level support for scientific research stems from a 1957 agreement to coordinate efforts in nuclear research, but only really got off the ground in the 1980s with the initiation of the Framework Programmes. FPs seek to stimulate economic development indirectly by funding basic research and unprofitable yet useful (long term) knowledge activities. Generally universities and multinational corporations have profited from the FPs, and they have helped the EU its raise its level of R&D spending. However, as is painfully clear by the midterm review of the Lisbon strategy this is still lower than Europe's main competitors. In any case, R&D will figure prominently in any scenario of Lisbon implementation. On the other hand, the FPs may also come under fire of competition policy, if they stray too far from supporting non-competitive basic research and attempt to directly push the Lisbon goals.

5.1.2.3 Competition policy

The aim of EU competition policy is to help the internal market to function by ensuring that a level playing field exists. Main activities involve reducing state aid, liberalization and privatization of state-owned companies and regulating mergers to prevent monopoly formation. Currently, the liberalization of the services sector is on the agenda, which is highly relevant for the Lisbon strategy since the knowledge-based economy is largely services related. The success of competition policy is linked to that of the common market where, between 1958 and 1972, trade between member states grew three times faster than outside. In the process, however, competition policy sometimes comes into conflict with other policy sectors. Both R&D policy and regional policy, which also offer targeted subsides to businesses, walk a very fine line between serving community wide goals and offering state aid.

In conclusion, these three policy fields— among others naturally, but for the purposes of expediency only these have been selected — offer some tools for Lisbon. Changes in governance, embedding ideals of competition in the institutional framework at the local level can be achieved via regional policy. This can also be utilized to link strategic areas and jobs via infrastructure investments and training programmes. R&D is employed as direct stimulation, and competition to end unfair practices that hamper growth. As indicated, there is also a very delicate balancing act between concerns of regional equality, economic competitiveness and free trade in the main sectors relevant to the Lisbon strategy.

5.1.3 Driving forces and scenario hypotheses

The thematic scenarios for the economy that were created in the context of ESPON 3.2 are of the prospective policy type. This means that the independent variable is EU policy. For this reason, much attention will be paid to the decision to adopt a particular kind of policy strategy, the various measures implemented to this end, and, finally, the impacts these may have on social and economic cohesion and spatial development. Because the intent is to examine the effects of different policy directions, as many ancillary variables will held as constant as is possible. In all scenarios it will therefore be assumed that globalization, that is the ongoing intertwining of international networks and economic relationships, will continue to increase. In addition, the rise of the knowledge, information or creative-class economy will also be assumed to continue in each scenario. Finally, that the EU agricultural budget will continue to be reduced under pressure of budgetary constraints, environmental concerns and successive WTO negotiations.

The scenarios are arranged along two axes. These represent the two economic policy concepts that should have the largest impact on the spatial development of Europe: efficiency and competitiveness on the one hand, and equity and cohesion on the other. These axes will be discussed in turn.

5.1.3.1 Equity and cohesion Axis

Over the past decades, economic, social and territorial cohesion policy became one of the most important policies of the European Union, representing about 36-38% of the Community's budget expenditures. There can be no doubt, economic and social cohesion objectives of the EU played a very significant role in some countries' development. Though with different intensity and with different financial resources, member states also wanted to further mitigate internal social, economic and territorial disparities in development and income. As a result, EU and national 'cohesion type' policies have played a decisive role in Europe's development in the last half century.

The formulation and implementation of equity considerations and cohesion policies were always accompanied by criticisms and debates. Criticisms became louder especially in the last years. Cohesion policy has been made out to be one of the scapegoats for not achieving the Lisbon objectives. The debates on the future of cohesion policy are manifold and far from conclusive. Ongoing discussions include: what share of the Community budget should be spent for these purposes? How large circle of countries and regions should benefit from cohesion measures? Should cohesion support be limited in time? What kinds of projects can be funded using cohesion support?

The horizontal axis of the system of coordinates represents the equity and cohesion dimension. The left side indicates a lower level of cohesion policy and the right side a higher level. The place of a particular policy mix along this axis depends not only on the size of financial means available for cohesion and social equity purposes however. It depends also

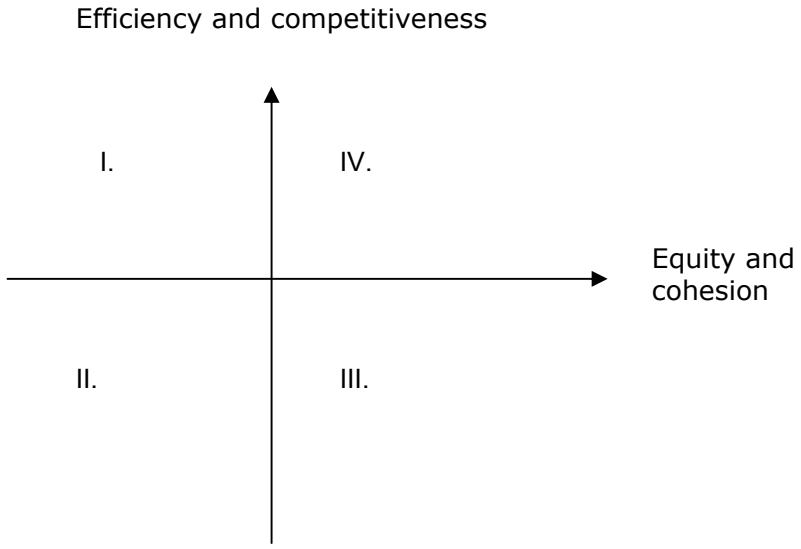
on the importance, attached to these policies, on their being more targeted, concentrated and on their system of delivery.

5.1.3.2 Efficiency and competitiveness Axis

Competitiveness has become the key notion in the economic policy of recent times. It includes not only economic efficiency, but innovation, marketing, flexibility, structural change and risk management as well. Several recent studies demonstrated that Europe's lagging behind the US in GDP per capita is attributable less to productivity per working hour (efficiency), rather to the lower working hours per person employed, to the lower employment level, to the lower level of innovation, to the smaller share of fixed capital accumulation, to the lower expenditure on R&D, to the small amount of venture capital, to high taxes and to the low level of labour and capital mobility. To achieve improvements in all these weaknesses needs substantial changes in microeconomic and macroeconomic policies, in the system of welfare services and in governance methods and practices. All these are included in the dimension of the vertical axis representing efficiency and competitiveness.

5.1.3.3 Scenario logic

The four segments of the system of coordinates, divided by the axes, represent the four scenarios of European economic policy developments and their spatial impacts. The four segments represent: I. Higher efficiency and competitiveness – lower equity and cohesion; II. Lower efficiency and competitiveness – lower equity and cohesion; III. Lower efficiency and competitiveness – higher equity and cohesion; and IV. Higher efficiency and competitiveness – higher equity and cohesion respectively.



5.1.4 Sources of information

The list below includes only the principal sources of the scenario base. Several other sources were considered and utilised. Their complete list is to be found in the bibliography attached to the scenario base.

For the description of secular development trends of the World and European economy the basic source was the book written by Angus Maddison: *The World Economy: A Millennial Perspective*, published by the OECD in 2001. In the description of the present macroeconomic situation, we largely utilised the study 'An Agenda for a Growing Europe' prepared by the High Level Group in 2003 under the chairmanship of Professor André Sapir. The description of the regional situation and development was based first of all on the *Third Report on Economic and Social Cohesion,* published by the European Commission in March 2004. An important source was the Discussion Paper of the European Policies Research Centre at the University of Strathclyde, Glasgow *Benchmarking Regional Policy in Europe*. Furthermore, we utilised the study, written by the European Investment Bank 'A survey of socio-economic disparities between the regions of the EU' (Daniel Moucque), and two articles of Christian Vandermotten (*Une nouvelle typologie économique des regions eurpéennes* and *Les disparités spatiales en Europe et leurs Évolutions: 1960-2000*). Finally, for the description of future trends, we utilised as basic source the study written by Ruud de Mooij and Paul Tang *Four Futures of Europe* (2003) at the Dutch Centraal Planbureau.

5.2 Scenarios

5.2.1 Logic of scenario selection

For such huge, multifaceted and complex systems as the European economy and European spatial development an infinite number of development scenarios can be outlined and described. The four scenarios described below represent four of these infinite possibilities. They have not been selected randomly; they have a systemic relationship to each other. This is because, when developing scenarios, it is important to make the different alternative futures distinct from one another, immediately identifiable and plausible.
Importantly, the scenarios are of the **prospective policy type**. This means that the independent variable is EU policy. For this reason, much attention will be paid to the decision to adopt a particular kind of policy strategy, the various measures implemented to this end, and, finally, the impacts these will likely have on social and economic cohesion and spatial development. Because the intent is to examine the effects of different policy directions, as many ancillary variables as possible will be held constant. In all scenarios it will therefore be assumed that globalisation, that is the ongoing intertwining of international networks and economic relationships, will continue unabated. In addition, the rise of the knowledge, information or creative-class economy, discussed at length in the scenario base, will also be assumed to continue in each scenario. Other crucial economic variables, such as the exchange rate between the dollar and euro, stock market performance, shifting global fortunes between world regions will be excluded from the analysis (or held constant in all scenarios) in order to isolate the impact of policy.
A few preliminary remarks are in order regarding the selected axis-system methodology. Ideally, the typology created by the axes would exclude all reference to specific policies or policy objectives (e.g. the Lisbon strategy) as these are continually modified, and exclude any notion of success or failure since this would clearly give a priori biases regarding desirability: this must be discovered after the scenario exercise, rather than be assumed beforehand. This being said, the two axes have not been selected arbitrarily in terms of EU politics. In fact, the underlying rationale for this choice can be found in the European

Union's own approach to promoting economic development. Perhaps the best statement regarding the ambitions of the European Union in terms of the economy can be found in the Lisbon/Göteborg strategy to become by 2010 'the most dynamic and competitive knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion, and respect for the environment.' This dual emphasis on efficiency/competitiveness on the one hand and equity/cohesion on the other comprises the underpinnings for the two scenario axes (we have chosen not to include sustainability/respect for the environment as an independent variable in our analysis). Furthermore these two axes are conventionally positioned against one another as a simple trade-off, but we will show that they are better viewed as dimensions that are not necessarily mutually exclusive. Before presenting our scenario sketches, this method will be elaborated further with a brief description of the two axes.

5.2.1.1 Equity and cohesion axis (horizontal)

The horizontal axis of the system of coordinates represents the equity and cohesion dimension of the scenario. A high score on this axis therefore implies that these kinds of redistributive policies will be given priority over other economic measures. There is a specific history to this approach: EU and national 'cohesion type' policies have played a decisive role in Europe's development in the last half century. Over the past few decades, regional policy became one of the most important policies of the European Union, and now represents over 35% of the Community's budget expenditures. The formulation and implementation of equity considerations and cohesion policies have always been accompanied by debate.[23] Nevertheless, the EU's economic and social cohesion objectives have played a very significant role in some countries' economic development, not in the least because they demand similar investments on the part of the member states. Member states also wanted to mitigate internal social, economic and territorial disparities in development and income, though with different intensity and with different financial resources.

5.2.1.2 Efficiency and competitiveness axis (vertical)

The vertical axis of the system of coordinates represents the efficiency and competitiveness dimension of the scenario. A high score on this axis will imply policy priority being given to stimulating economic growth via improving efficiency and competitiveness. This reflects the current zeitgeist in economic policy circles. Several recent studies have demonstrated that Europe's lagging behind the US in GDP per capita is less attributable to productivity per working hour, and more to the fewer working hours per person employed, lower employment level, lower level of innovation, the smaller share of fixed capital accumulation, lower expenditure on R&D, the small amount of venture capital, high taxes and finally low labour and capital mobility. To achieve improvements in all these areas, substantial changes have to take place in microeconomic and macroeconomic policies, in the system of welfare services and in governance methods and practices. All these are included in the dimension of the vertical axis representing efficiency and competitiveness.

[23] These debates are related, on the one hand, to the future dimension and resources of these policies: what share of Community investment should be spent on these purposes, what should their share be in the Community budget? How effective are they in achieving their goals? On the other hand, the orientation of cohesion policy is also debated: who and what should be supported? Should it be restricted to infrastructure, environment, education and culture — as many experts suggest — or should it be extended to the support of job-creating business enterprises as well? How large a circle of countries and regions should benefit from cohesion measures? Should cohesion support be limited in time?

5.2.1.3 Visual depiction of scenario logic

The four segments of the coordinate system, divided by the two axes, represent the four scenarios of European economic policy developments and their spatial impacts. The four segments represent:
High efficiency/competitiveness — low equity/cohesion (Best Foot Forward)
High efficiency/competitiveness — high equity/cohesion (EuroTigers)
Low efficiency/competitiveness — high equity/cohesion (Blühende Landschaften)
Low efficiency/competitiveness — low equity/cohesion (National Revival)

Again, these scenarios are *prospective policy scenarios*, because they explore the impacts of changes in some important national and community priorities. The dimensions of the axes represent the importance and priority of individual policies. Their measurement by exact quantitative indicators is rather difficult though we shall try to quantify them when possible.
To facilitate the analysis, the most important policy areas affecting the economy in which the EU has competence will be considered in more detail in the scenarios. Competition (internal market) policy, regional policy and R&D policy will play a particularly important role in the scenarios because they directly relate to economic development. It is therefore important to note that some policies undergo periodical revisions rather than continual adaptation. Since the 1980s, regional policy has been defined by 'structural fund periods', and R&D policy by consecutively numbered Framework Programs. At the end of each term, the policy is evaluated and modified in order to increase effectiveness, adapt to changed circumstances or to achieve different policy goals, making the transfer date significant. It should be stated that these periods are roughly five years, but have different starting dates so that they do not necessarily run parallel to one another. Therefore, decisions on, for example, regional policy in one year, can affect the decision on a framework programme a year or two later. An indication of how periods can interrelate is presented in the table below.

	1980	1985	1990	1995	2000	2005	2010	2015	2020	2025	2030
SF			1	2	3	3	4	5	6	6	7
FP		1	2/3	3/4	5	6	7	8	9	10	11

Table 9 Structural Funds and Framework Programme policy periods

5.2.1.4 Territorial impacts of scenarios

Of course, the scenarios are much more complex than the duality that the axis structure implies. The economy of Europe is impacted by various policy sectors, such as agriculture, competition, transport and the environment, which cannot always be placed unambiguously within the dimensions of equity and efficiency.
Since only the integrated scenarios will be supported by the MASST model, only certain qualitative and rather guarded statements will be made here regarding *expected* results. In addition, although the regional economic impacts will be the primary point of attention, interfaces with other territorial areas will be addressed. These include demography (i.e. migration), environment (quality and change in policy), transport (congestion and model split), and rural areas (functional change, vitality).

5.2.1.5 Organisation of scenario sketches

Since the four scenarios are prospective policy scenarios, the emphasis is on the driving forces leading up to the decision to adopt a particular strategy, the specific package of policy measures designed to implement it, and its effects. To aid readability and comparability, each scenario sketch is organised identically, according to the structure presented below.

1. Scenario hypothesis
2. Driving forces
3. Contextual elements
4. Strategy
5. Implementation
6. Developments and events (storyline)
7. Impacts
8. Territorial image of 2030
9. Summary and conclusions

5.2.2 Economy Scenario 1: Best foot forward

This scenario describes a situation where the EU pursues a strong policy in favour of economic competitiveness. Well-performing regions and sectors are bolstered in order to allow them to achieve an internationally elite status in the global knowledge economy. Matters of cohesion and sustainability are secondary.

5.2.2.1 Scenario hypothesis

As indicated in the scenario base, the economic competitiveness of Europe is seen as increasingly tenuous in a context of rapidly developing Asian competitors, a dominant North American block that continues to attract the best knowledge workers, conflicting sectoral policies, outdated social welfare systems and looming ageing of the population. Following the publication of the 'Kok report' on the discouraging progress of the Lisbon strategy in late 2004, it is clear that drastic measures need to be taken to reverse the trend towards stagnation (EC, Facing the Challenge, 2004). It is also acknowledged that a clear gap still exists between Europe and Japan and the United States in levels of investment in R&D. The scenario assumes that the level of globalisation will continue to rise in terms of market liberalization (WTO), movement of labour (knowledge workers) and capital (footloose industries). In addition, the scenario excludes the possibility of a major collapse of the world economy through war, disease, natural disaster or market failure, assuming that global trade will continue to rise. The importance of the knowledge economy for the European economy is also taken as a given for the coming period.
The basic hypothesis of this scenario is that efficiency considerations will gradually dominate European and national policies. Europe consequently follows the objective of catching up with the US and the Far East in respect to competitiveness and growth. The rate of investment will be increased and investment will go mainly to high-tech and competitive sectors of the economy. Institutions, regulations and policies which are regarded as obstacles of competitiveness and catching-up, will be revised and reforms serving growth and competitiveness will be implemented. Other government expenditures will be restricted, which will have an impact on social, employment, environmental and cohesion policies. Simultaneously, business environment will be improved: corporate taxes will be reduced, new entries into the market will be facilitated, and excessive regulations (e.g. concerning employment) will be reduced. State aid will mainly support R&D and innovation. The obstacles of the mobility of capital and labour will be reduced, taxation will be harmonised in a relatively low level.

5.2.2.2 Driving forces

Since all scenario sketches have policy as the main independent variable, 'driving forces' represent here the factors that put pressure on the policy arena to maintain, strengthen, modify or abolish a particular policy strategy. The main driving forces of this scenario are the ambitions of the Lisbon strategy coupled with the publication of disheartening progress reports thereof, effects of European expansion, globalisation and increasing pressure from international competitors in the knowledge economy.

Political climate: the sobering 2004 midterm review by the High Level Group chaired by Wim Kok placed Lisbon once again at the top of the European agenda. The conclusion was clear: 'The Lisbon strategy is even more urgent today as the growth gap with North America and Asia has widened, while Europe must meet the combined challenges of low population growth and ageing. Time is running out and there can be no room for complacency. Better implementation is needed to make up for lost time' (quoted in COM (2005) 24). Meanwhile, there is evidence, from ESPON among others, of the problematic and sometimes counterproductive functioning of CAP.

Enlargement: while the effects have not yet been felt, the incorporation of ten new members with a GDP per capita just of 46% of the EU25 figure will have profound impacts for EU sectoral policy (particularly CAP and regional policy), which could place an unwanted strain on the EU budget, compromising efforts for boosting competitiveness.

Globalisation: the ongoing opening of international markets (WTO) further exposes Europe to its competitors, heightening the imperative for achieving the Lisbon objectives. As knowledge becomes capital, competition will increasingly take the form of attracting and securing the best knowledge-intensive industries and workers.

5.2.2.3 Contextual elements of the decision to place Europe's 'best foot forward'

As stated, in this scenario the tenets of the original Lisbon strategy, to become the most competitive knowledge-based economy in the world, constitute the main point of departure. In the context of questionable progress on the Lisbon strategy, the enlargement is particularly problematic. Most new member states are hardly competitive even within the context of Western Europe, let alone with Asia and North America. This will be exacerbated by the entry of Bulgaria and Romania in 2007. There is a growing apprehension among the more affluent members that the political weight of the new entrants in the Commission and Parliament may result in more emphasis on redistribution. This is evident on an individual level with measures such as restricting migration from the N10 and the phased implementation of CAP in the new member states, and some elements (more prominent role for Lisbon in the *Third Cohesion Report*) of regional policy. By 2005, there was a growing awareness among core member states that they must band together if a programme of economic competitiveness is to be preserved: akin to the 'Europe of two-speeds' discussion the year before. For this reason, some cohesion-oriented policies will have to be sacrificed in order to enable the EU to put its 'best foot forward'.

Core countries conspicuously espousing the 'best foot' philosophy include the United Kingdom, Austria, the Benelux, Sweden and Finland — and particularly the business sector in these countries. Sympathisers but not overt proponents include France and Germany as both countries contain some elite regions, but also some clearly lagging ones as well (Britain, despite the fact it clearly has lagging regions, also has a more liberal tradition than Continental countries). Countries such as Italy are divided on the issue, whereas Ireland, Spain, Portugal and Greece are opposed on economic and ideological terms (all have experienced the benefits of cohesion policy). Although the strategy will not benefit all regions equally, the citizens of Europe also seem convinced of its necessity: according to the 2004 Eurobarometer Report, for example, 'European public opinion is ready for solutions in order to foster growth and address crucial issues like unemployment or the future of pensions' (EC, *Eurobarometer on Lisbon Agenda*, 2 Feb 2005). Public opinion also shows that a 'vast majority' believes that a knowledge-based society is the best way to deliver this.

5.2.2.4 The 'best foot forward' strategy

Employing a 'back to basics' argument, the coalition successfully pushes through a programme to realise Lisbon by concentrating its resources on its main assets. There is already some indication of support for this in the wake of the conclusions of the midterm review of Lisbon: 'Lisbon's overburdened list of policy objectives has obscured the importance of these actions which can drive productivity growth' (COM(2005)24, p. 13).
The strategy entails massive injections of funds into technology development, education in hard sciences, support for ICT infrastructure and the like in order to bridge the investment

gap between the EU and Japan and the US. The 'best foot forward' is an intensely pro-EU strategy, as the European level will be relied on to deliver many of the changes via regulation and financial support. It is also emphatically Europhilic in nature as it wishes to champion the best aspects of Europe, allowing the EU to act as a beacon for the best minds on the globe.

Since the ultimate goal is to attract and retain the world's best human capital in the knowledge economy, additional investments will be required to further enhance the quality of facilities and amenities in Europe's most competitive regions. This means that the European Union must 'ensure that our universities can compete with the best in the world' (COM(2005)24, p. 9). Already some specific measures are being proposed such as the creation of a European Institute of Technology. However, the 'best foot forward' strategy goes further: funds must be directed to disseminating an image of Europe's elite universities as a unified alternative 'ivy league' rather than an archipelago of excellence, as they are now commonly perceived. Educational credentials are standardised and streamlined throughout Europe, and rankings published regularly. The most successful institutions are rewarded with 'EU top' status, entitling them to additional funding and other benefits. The latter include, for example, preferential treatment in land-use conflicts regarding their physical expansion, relaxation of immigration laws in order to draw top professionals and students, and programmes for benefit packages (subsidised travel and housing schemes) for students and staff. Additional funding would be earmarked towards research facilities and networking activities designed to attain spillovers.

Since the central regions (Pentagon) are currently the main driving forces and carriers of Pan-European growth and competitiveness, most of the investments will be directed to these areas. These are also the regions with the highest level of 'creativity' as understood by Florida (2002). EU subsidies will therefore be provided for improved infrastructure in the Pentagon (to counteract congestion) and to dynamic companies and organizations (universities) engaged in the knowledge economy. Information and resources will be pooled in order to construct a powerful MegaEuroRegion with the critical mass to attain and remain at the top of the world knowledge economy. In order to finance this, the structural funds will be increasingly directed towards the objective defined in the *Third Cohesion Report* 'Competitiveness for growth and employment', and will be explicitly tied to the Framework Programmes for stimulating R&D. Related to this, the budget of DG Research will be increased substantially, and tied to supporting programmes that contribute to economic competitiveness. On the other hand, CAP funding will be reduced dramatically. Aggressive competition policy will also be pursued to ensure that labour, goods and services are allowed to flow freely in Europe, on the assumption that this will further enhance the competitive position of top locations. In addition, spatial measures are taken to improve the attractiveness of the core area of Europe (or at least offset some of the negative spatial consequences of economic development) for knowledge workers (Florida, 2002).

Finally, globalisation is harnessed to launch knowledge-intensive firms into the 21st Century by means of proactive stimulation packages. Measures include selective tax cuts, information production and sharing schemes, selective migration policies, and exemption from certain (e.g. environmental, labour market) restrictions. Policies target large organizations with proven success or certain dynamic sectors such as information technology.

5.2.2.5 Implementation of the strategy

This section will provide a short summary of the various interventions into strategic decisions and sectoral policies that are required to realise the strategy outlined above.

EU budget. In this scenario, the taxing potential of national governments will be seriously restricted and this will have an impact on their willingness to contribute to the community budget. National contributions to the community budget will be reduced to 1 percent of GDP, or even below this level in longer term. The structure of the expenditures will gradually, but in the long run substantially, change. The share of agriculture and cohesion policy will be substantially reduced, while the share of expenditures under the heading 'Competitiveness for growth and employment' will substantially increase. The share of R&D and of external policies will also increase and private sector R&D will be encouraged via tax credits.

Agriculture: as CAP subsidies do not promote economic competitiveness in a knowledge economy — indeed agriculture is viewed in this scenario as increasingly archaic and irrelevant — the budget will be reduced substantially (the enlargement has added urgency to this, as the N10 include many poor agricultural areas). Pillar 1 support is abolished entirely, and Pillar 2 subsidies are granted to areas in which they will produce maximum amenity in top locations.

Competition: one of the main aims should be to make the Single Market more dynamic. It means better coordination between regulatory and competition policies to encourage market access for new entrants and to introduce a more pro-active policy to support labour mobility. State-aid regulations will be lifted for certain kinds of industry, particularly knowledge-intensive small business start-ups; this was the thrust of the Communication 'Working together for the Lisbon Strategy' (COM(2005)24, p. 8). On the other hand, state aid should be strongly discouraged if it interferes with or inhibits private-sector investment (see EC, *EMAC Speech Neelie Kroes*, 3 Feb 2005). In addition, the EU has to remain vigilant that promotion of elite organisations and sectors does not stifle healthy competition, and therefore existing anti-trust legislation and rules on public procurement will remain vigorous. This scenario also calls for intensifying the freedom of movement of jobs, labour and capital in Europe, as it is estimated that 'completion of a single market in services should lead to an increase in the GDP level by 0.6% and of employment level by 0.3% in the medium-term' (COM(2005)24, p. 29).

Enlargement will progress dynamically in this scenario. The West Balkans, Turkey and perhaps the Ukraine will be members already in the late 2010s and, perhaps, further countries will join the EU (Belarus, Moldova, some countries of the Caucasus, some Maghreb countries) in the 2020s. The main motives of enlargement will be to increase the market and political considerations: to ensure a stable political environment for the European economy. The heterogeneity of the European Union will further increase. The political resistance to enlargement by the more affluent member states will dissipate with the knowledge that Community resources are being directed primarily to elite areas, rather than cohesion. The new entrants, denying the aid received by other new member states in the past, orient themselves towards benefiting from the common market.

Environment and nature: insofar as environmental directives may harm competitiveness, exemptions are provided. Particularly the Framework Directive on Water and Natura2000 will be relaxed in areas in which it is difficult to meet standards without incurring great costs. Similar selective implementation/repeal will apply to air, soil and water quality and noise pollution. If possible, however, the EU will compensate elite areas for these costs in order to maintain environmental quality.

R&D: this is viewed as one of the most vital spearheads for the Lisbon strategy. Budgets of the Framework Programmes are increased dramatically, infused by links to the structural funds and CAP reductions, allowing the EU to meet and perhaps even exceed Lisbon targets of 3% of GDP (and bringing it in line with Japan and the US). According to the Commission, for example, 'an increase in the share of R&D expenditures in GDP from 1.9% to 3% …

would result in an increase of 1.7% in the level of GDP by 2010' (COM(2005)24, p. 29). As it is acknowledged that R&D is just one aspect of the knowledge economy, the activities of DG Research will be adapted to support other forms of innovative research as well. In fact, the Commission arrived at this conclusion as well: 'by far the largest productivity effect comes from the absorption of the results of foreign R&D' (EC, *2004 European Competitiveness Report*, p. 10), rather than being the source of this R&D. A similar conclusion was drawn empirically for the Netherlands by Raspe *et al* (2004). At any rate, the theme of FP6 (Information Society Research) could be carried on into the future in this scenario. As a result of relevant policies, R&D investments undergo a considerable increase (the 3% objective, set up by the Barcelona summit, was reached in the meantime) and, what is not less important, these investments show a growing efficiency. Tax credits will be introduced to enhance R&D investments in the private business sector, particularly for start-ups.

In general terms, the approach at the EU and national level to boost investment in R&D undergoes a paradigm shift, away from subsidies which are designated to subsidize a priori certain key technology towards creating a general R&D friendly environment, in combination with a competition-based system of funding for the best research ideas. Although the process of speeding up productivity growth is very complex and goes far beyond ICT, the latter doubtless shapes an essential ingredient on this path towards higher productivity. The significant increase in spending for R&D in combination with a growing efficiency of these investments will allow to make European high tech sectors more competitive, and a number of European high-tech industries will become world-wide leading in terms of front-end technology and economic success. Among the beneficiaries, promoted by the newly established EASR, primarily are the high-tech clusters in highly agglomerated spaces inside and outside the European Pentagon, where a critical mass of universities, research institutions and firms of relevant industries is already given and where intensive collaboration between them (to transmit the [tacit] knowledge) does already work and must not be created 'artificially'.

The initiatives to increase and more effectively use R&D investment will go along with initiatives to improve the skills in line with the requirements of the emerging knowledge society. First priority is given to policies which create better conditions for the attraction and retainment of top research personnel towards/in Europe. Fast-track working permissions for non-European top-researchers as well as non-bureaucratic visa regulations will facilitate the attraction of the 'best brains' towards Europe. Complementary reforms aimed at an improved funding of universities, particularly on favourable remuneration conditions for top researchers, will be supportive when it comes to the attraction of urgently needed top personnel for R&D. Moreover, reforms of Europe's educational system, particularly at the university level, will come into force, allowing more competition among universities to attract the most talented students and scholars.

At the European level, regulations will be introduced for the mutual recognition of qualifications and for mutual granting of the entitlements foreseen in the different national social security systems. These latter topics were even mentioned in the so called Kok report in the middle of the first decade (2004) as remaining obstacles for an intra-European exchange of well educated researchers (see Facing the Challenge [2004]: p. 20). The above described policies in the field of university education and research will create a strong competition among the universities where some of them will come up as 'elite universities'. As a result of these developments with respect to the education system, Europe will re-gain its attractiveness as a location for the 'best brains', and moreover, the reforms at the university level will lead to a relatively broad supply of highly educated 'knowledge-workers'. This class of well-educated people will enjoy high incomes and good employment chances. For the highly qualified workforce the capability to use advanced ICT is 'standard', while people with low skills, who earn only low incomes, are excluded from the benefits arising from ICT. Thus, Europe continues to show signs of digital divide.

Regional policy: the Structural Funds will remain important, but will be increasingly employed strategically towards supporting initiatives that facilitate the creation and maintenance of elite regions. Funds to assist innovative firms in areas with dense knowledge networks are included in regional policy under the motto 'linking innovative potential to geographical advantage'.
Transportation: congestion on roadways and rail in top regions is to be expected, given the additional economic activity. Member states must ensure that this will not undermine community investments by investing in mass transit solutions, (underground) road bypasses and multimodal transport.

5.2.2.6 Developments and events (storyline)

In June 2005, the European Council principally approved the financial perspectives and the regulations of Structural and Cohesion Funds for the period 2007-2013. For the first time in the history of European integration, this budget allocated significant funds not only to agricultural and cohesion objectives, but also to objectives such as growth, innovation and competitiveness. The new 'Competitiveness for growth and employment' fund was the most dynamically increasing item of the EU budget, nevertheless, its share remained modest (20%) in comparison to total expenditure even in the last years of the programming period.
The real break occurred in later. After a rather unambitious and pragmatic Dutch presidency in 2004, which concentrated on 'cutting red tape' and managing daily operations following the enlargement and completion of the Draft Constitution, the political climate in Europe seemed ripe for a more visionary course. The Luxembourg presidency attempted to prepare this, but saw its hopes dashed at the eve of its term with the resounding defeat of the Constitution in French and Dutch referenda. The British term was mired in political battles over the reform of the budget, but the Austrian term placed the Lisbon agenda once again at the centre of European politics. The Finnish presidency took this forward in late 2006. As the 2010 deadline loomed ahead, the Lisbon imperative gained more and more support amongst the populace and policy leaders.
The decisive change in economic policies occurred between 2010 and 2014, during the preparation of the next programming period. Governments, especially those of the larger and wealthier member states, realised that, if they wanted to prevent a fatal lagging behind of Europe, they had to implement radical policy measures. Moreover, politically, they stand better to profit from this policy change.
The next financial perspective, for the period 2014-2020, reflected these radical changes. The share of agricultural expenditures ('Preservation and management of natural resources') decreased to less than 15 percent of the EU budget. The budgetary share of cohesion policy decreased radically – to 25 % -as well. More than half of the EU budget became allocated to the objectives of promoting overall European competitiveness and growth (to the R&D sector, to promote business infrastructure, etc.).
European governments also took steps to facilitate the emergence of an efficient and productive economy. Publicly provided welfare provisions were limited to social assistance. Insurance against labour market risks was reduced and partly shifted to the market and social partners.
Despite the radical reduction of the resources of European Cohesion policy, the Eastern member states – as a whole – converged gradually to the European average. This happened because rapid institutional reform and a catching up of technology took place also in these countries. Indeed, there was a dramatic surge of foreign direct investment flows into the Eastern regions of Europe. As a result, European Cohesion policy, starting from 2020, was abolished at all.
Member countries arrived to an agreement concerning harmonised taxation only in the early 2010s. Accordingly, old, big member countries lowered radically their tax rates, while new members raised them moderately. In sum, this resulted in an overall tax reduction in Europe, which raised the competitiveness of European firms, but restricted the budgetary manoeuvring space for governments substantially.

Competition within the European economy substantially intensified from the early 2020s. Flexibility rose at the expense of commitment in economic relations. Free trade in agriculture and services was fostered. This called for substantial restructuring in Europe. For instance, agricultural sectors with little added value contracted significantly. The same happened to textiles in a number of countries. Although this entailed substantial changes, European economies became sufficiently flexible to cope with these changes.
In the meantime, a radical enlargement of the European Union and especially of the European Economic Area took place. In 2007, Romania and Bulgaria, in 2012, with a new 'big bang', all countries of the Western Balkans became members of the European Union. The main driving forces of enlargement were economic and political factors. European enterprises required new markets for their products and markets for secure investments. They wanted new and cheap labour for their new plants and outlets. On the other hand, they wanted stable political environment for the European economy. In the 2010s Switzerland and Norway joined the Union without difficulty. In 2020, Turkey, the Ukraine, Moldova, Armenia, Georgia and Azerbaijan became members of the European Union. In the same year, the EU signed free trade agreement with Russia, all former Soviet republics in Central Asia, with the countries of the Maghreb, Mashreq and the Levantine coast. In 2030, a European Union of 700 million inhabitants and a European Free Trade Area of 1,2 billion people, became a decisive factor in the World economy. But even so, they represented only 7,6 and 13 percent of the World population, respectively. The Far East, Japan, China, Southeast Asia and India with 3 billion inhabitants and with a rapidly growing economy had become serious competitors on the World markets. Hence, the European Union, the United States and Latin America agreed upon a 'backdoor free trade' agreement in 2025. The transatlantic economic integration actually had gone beyond a free trade agreement: it led de facto to a single market in which a large number of formal and informal barriers to trade were removed through mutual recognition. This holds in particular for the service sectors. This significantly fostered growth in the ICT sector in Europe.

5.2.2.7 Impacts

In the discussion of impacts in the four scenarios, this will be done, whenever possible, in terms of Pentagon vs. periphery (macro), EU15 versus N10, North vs. South (former cohesion countries) and rural vs. urban.
The expectation is that successful implementation of the 'best foot forward' strategy will produce a moderate gains in overall **economic growth**. The improved competitiveness of a limited number of businesses and institutions largely in the Pentagon is the engine behind this growth. There will be catching up of the N10 in later years, but initially they will have difficulty competing with the subsidized and already well-developed areas in the EU15. The same is true for some of the former cohesion countries, with the exception of Ireland. More than direct subsidies, the relief given as a result of reduced payments via Pillar 1 will be noticed by consumers in the form of reduced prices, providing an extra boost for the retail sector and consumer services. The loss of vitality in rural areas will create additional migration to urban areas, a source of inexpensive labour.
With regard to **rural development**, the share of CAP in the community budget will be substantially reduced. Rural areas will undergo a fundamental transformation. Agricultural production activity will be concentrated to those farms and those areas, where competitive production can be realised. These are mostly larger farms where the geographic, soil, climatic and hydrological endowments are favourable for agriculture and where markets are easily accessible. In other areas, full-time agricultural production activity will be radically reduced, even abandoned. Land will also be reused for environmental, recreational, and other non-agricultural purposes. The two types of land use will be separated not only at the local level but sometimes at regional level as well. It means that in some regions rural employment opportunities will be radically reduced. This will occur, first of all, in the new member states of Central and Southeast Europe (the present share of agricultural employment is 20-30% in Romania and Poland) but also in some Mediterranean countries.

These people will look for new employment first of all in the urban centres of their own country, but also in the European core area. Many more will remain, however, and become even more disadvantaged. The overall decrease in rural population will be however compensated by urban residents moving to rural areas adjoining urban centres.

In terms of **transport** flows, the probable impact of 'best foot forward' is a rise in traffic volumes between the most important urban areas in the European core. Congestion of the roadway network may lead to the continued growth in air travel via regional (suburban) airports and better utilisation of the high-speed train network, which is geared towards linking important urban centres. Whether the improvements in infrastructure are sufficient to offset the expected growth in transport in the Pentagon is uncertain. More certain, however, is the continued lack of accessibility of peripheral areas.

With regard to the **environment**, it is to be expected that this scenario is hardly sustainable. Waivers of environmental rules entail the acceptance of more intense levels of pollution, and the low priority given to this area and Natura2000 in general will most likely translate itself into reduced environmental quality in the Pentagon. More peripheral areas may notice little change, as work continues to be created elsewhere.

The spatial-economic changes will also be reflected in demographic development. Institutional obstacles to **migration** within the EU will be removed and efforts will be made to overcome other obstacles to labour movement (in terms of the standardisation and acceptance of diplomas, overcoming the language barrier, etc). Consequently, a relatively large flow of migrants will be drawn to the core areas of Europe. Active recruitment of skilled outside the EU is encouraged. These migration flows, however, will be substantially different from those of the 1960s and 1970s (unskilled or low skilled guest workers from the Mediterranean, Maghreb, and Turkey) and also from those of the 1980s and 1990s (asylum seekers from the poorest and war-ridden countries of the world). A large part of the new immigrants will consist of highly skilled, professional people.

5.2.2.8 Territorial image in 2030

As its name implies, the 'best foot forward' will benefit those regions that are currently capable of sustaining top universities, major financial institutions, research facilities and the like. At present, this points to the Pentagon, although obviously not all regions in the Pentagon qualify (e.g. the pockets of poverty in areas like Northern France), while some particularly strong nodes outside (e.g. Scandinavia) do. The net effect of this scenario will be a net increase in territorial disparities at the macro level (the central MegaEuroRegion versus the periphery) and the meso level (major cities versus smaller ones), and in that sense can be seen as anti-polycentric. However, since overall economic growth is expected to increase in 'best foot forward', increasing disparities do not mean necessarily the stagnation or decline of lagging regions. It could still mean growth, albeit less than the average growth rate, but growth nevertheless. But undoubtedly there will be regions in which absolute decline will occur.
In this scenario regional disparities are therefore expected to increase both between and within countries. Economic disparities are expected to increase among countries because knowledge based and research-intensive activities would generate the highest income and these activities are expected to increase faster in the core area where resources for research and innovation are most available. Paradoxically, intensive outsourcing of activities to less developed areas would not reduce but rather increase disparities, because it frees up the labour force in the core area for more productive, profitable and income-generating activities.
The concentration of economic activities is expected to increase within certain countries as well, because knowledge based and innovative economy will emerge first where geographic proximity and 'tacit knowledge' (transferable only by direct, personal contact and

experience) enhance and reinforce innovative behaviour and competitiveness. In the new member states, where FDI is — and will remain for a while — the principal vehicle of growth, the increase of disparities, as a result of the very selective location of FDI, will be marked.
In general, economic growth leads to pressures in and around urban areas for development. As this scenario is expected to produce additional economic growth, we can expect a corresponding intensification of human influence in Europe: draining of lakes, damming of rivers, building of infrastructure and construction of buildings. Urbanisation will however not occur evenly over the territory, but be concentrated in the Pentagon, and specifically in the largest settlements therein. Major urban agglomerations like Paris, London, Randstad and Ruhr will extend their influence into the surrounding regions at the expense of smaller centres, because these do not have the critical mass needed to support top economic facilities.

As noted, **urban development** in this scenario will be concentrated in the European core area, not necessarily within the administrative borders of the big cities, but rather in the Potential Urban Strategic Horizon (PUSH) areas defined in ESPON project 1.1.1. These are the surrounding areas of urban centres within reach of 45 minutes by car from the centre. The fate of the core of cities will depend much less on industry and much more on other factors, like their role as a service centre, tourism, etc. In the new member states and other peripheral areas the future development trend of the urban system is less certain in this scenario. The reason for this is that they will be highly dependent on the outsourcing activity of transnational enterprises and less on endogenous factors. If their main location strategy continues to be cheap labour, transnational enterprises will look for ever more peripheral places where this type of labour force is still available. This will result in a highly decentralised, but unstructured pattern. If those enterprises increasingly utilise the higher educated and skilled labour force of these countries, this will result in the same type of urban structure as in the more developed countries, yet at a more modest level.

5.2.2.9 Summary and conclusions

Although the growth in Europe as a whole will be more dynamic in Best Foot Forward, this will be accompanied by growing regional (but not necessarily national) disparities. Larger metropolitan areas with sufficient facilities like universities will profit from the shifts in EU policy. At the same time, sparsely populated regions will decline further. This is also likely to contribute to additional pressure on the existing transport infrastructure in the Pentagon, and will probably result in intensified environmental pollution.

5.2.3 Economy Scenario 2: EuroTigers

This scenario describes a situation where the EU pursues a two-pronged strategy of economic competitiveness and territorial cohesion. This is currently articulated in the Lisbon/Göteborg strategy, which aims at competitiveness, cohesion and sustainable development, and thus echoes the principles stated in the ESDP. The concept of polycentricity is used as a vehicle to achieve implementation.

5.2.3.1 Scenario hypothesis

In this scenario, the EU embarks on a mission to implement the Lisbon/Göteborg strategy. The approach differs markedly from the previous scenario. While large enterprises and advanced regions will adapt to the new requirements based on (own and external) private resources, knowledge-based and innovative development of small and medium-sized firms and of more peripheral regions will need to be supported by EU and national policies. It assumes also that a more differentiated approach will need to be applied to countries and regions that are in quite different situations. According to the EuroTigers strategy, support is given to areas with the potential to become competitive on a global scale, not to those which already are. Consequently, new competitive knowledge and innovation centres will emerge both inside and outside of the Pentagon. The most lagging regions are largely 'written off' as having little promise for improving the EU's competitiveness. Like the other scenarios, it is assumed that current globalisation trends will continue as well as the rise of the knowledge economy.

5.2.3.2 Driving forces

The main driving forces of this scenario are the ambitions of the Lisbon/Gothenburg strategy, European enlargement, globalisation and increasing pressure from international competitors in the knowledge economy. These will be considered in turn.

Political climate: the Lisbon/Göteborg remain the best statement of European ambitions behind which most member states and citizens can rally. The midterm reviews only emphasise the fact that more efforts — not less — are needed at the European scale. This is consistent with the ESDP and many ESPON findings. In addition, insights into the knowledge economy show that 'softer' criteria are also vital in securing a region's competitiveness, an argument for retaining the aspects of cohesion and sustainability in the Lisbon agenda.

Enlargement: there is a formidable task of reforming sectoral policy in a fair way to accommodate the new member states and bring them up to speed with the rest of Europe. It is acknowledged that the low starting point in terms of GDP per capita can translate itself into high annual growth, thus making these areas interesting to investors.

Globalisation: the mediocre economic performance of Europe in terms of annual growth could be augmented with the incorporation of developing regions (Euro-Tigers) gained by the enlargement into the EU.

Governance: economic organisations (enterprises) will apply business strategies suitable to enhance competitiveness and innovation. Governments and politicians of member states, inspired by their responsibility for the future of Europe, will implement those changes in the institutions, laws and regulations at national and supranational level which are necessary to set the European economy on a new development path, without losing the specific European achievements and social traditions.

5.2.3.3 Contextual elements of the EuroTiger strategy

With the successive enlargements, the European Union became more heterogeneous. Heterogeneity poses, without doubt, a threat to community governance, but simultaneously it is an opportunity as well. The European Union found itself compelled to apply a more differentiated approach to countries and regions being in very different situations and at rather different developmental levels. A differentiated approach is not necessarily contradictory to integration and can, in specific situations, even facilitate and promote it. Although the new member states are lagging economically, for precisely this reason they have a great growth potential, which far exceeds that of the elite areas in Europe in proportional terms. Indeed, economies in the new member states — and those of the 'old' cohesion countries as well — are now growing faster than the EU average. Obviously, their economic weight is not sufficient to give a momentum to the overall growth of the EU, nevertheless, theirs can be a valuable contribution to the spatial-economic structure of the EU, if managed properly. This is the essence of the EuroTigers philosophy.

The midterm review of the Lisbon/Göteborg strategy provides a new impetus for change within Europe. The sobering conclusions serve as a call for action to implement the strategy in its full form: competitiveness, cohesion and sustainability. This becomes a rallying cry for all member states; rather than accepting a two-speed Europe, all member states must band together to ensure that Lisbon becomes a reality. In order to raise the political support necessary in an enlarged Europe, the strategy devised to unite old and new member states stresses the complementarity of competitiveness and cohesion. Ireland is held up as a 'EuroTiger', a shining example of successful use of structural funds, and a model for the N10. Its progressive stance on intra-EU migration is also praised.

5.2.3.4 The 'EuroTiger' strategy

The essence of the Tiger strategy is to identify specific areas and sectors that hold the most promise for rapid and sustainable economic development. Unlike 'best foot forward' these are not necessarily the elite. Proponents of the EuroTiger strategy see devoting resources solely to the elite areas as flawed for two reasons. First, they already have such formidable resources that any extra support provided by the EU would be very small in proportional terms. Second, since these top-performers are already successful (by definition), they are likely to have the resources to remain competitive without EU assistance. The EuroTiger strategy, in contrast, seeks out instances where it can make a decisive contribution. The philosophy is similar to that of regional policy where funds are only given as a critical extra push for a project, rather than comprising a significant share of the total costs.

Like in spatial development, the EuroTigers motto for economic development is that polycentricity constitutes the golden mean between equity/welfare and efficiency/redistribution. This has the clear advantage of broadening the base of political support for the strategy, seen as a prerequisite for the implementation of the Lisbon strategy (COM(2005)24, p. 12). The experience of the last years seems to confirm the viability of this strategy. The table below displays the share of capital regions in the increment of GDP in the Central and Southeast European candidate countries in the period between 1995 and 2001. In Romania and Bulgaria this share is more than 100%, because in all other regions GDP had declined. In the Czech Republic and Hungary capital regions have produced about two thirds of the increment in GDP. Even in Poland and Slovakia, where development was more balanced, capital regions produced more than one third of the increment which is much higher than the respective regions' share in population.

Country	Capital region	Share of capital region in GDP production
Bulgaria	Yugozapaden	151%
Czech Republic	Praha	65%
Hungary	Közép-Magyarország	58%
Poland	Mazowieckie	35%
Romania	Bucuresti	278%
Slovakia	Bratislavsky	38%

Source: CEC: *Third Report on Economic and Social Cohesion*. Statistical Annex. Brussels 2003

Table 10 The share of capital regions in the increment of GDP in the candidate countries 1995-2001

Country	Region	Annual growth rate	Per capita GDP as a percentage of the EU15 average	
			1995	2001
PL	Mazowieckie	10.4	42.7	63.7
IRL	Southern and Eastern	9.8	70.5	85.4
IRL	Border, Midland and Western	8.1	101.5	129.2
PL	Wielkopolskie (Poznan)	7.8	33.8	43.4
RO	Bucuresti	7.4	38.1	52.3
PL	Pomorskie (Gdansk)	6.5	34.4	41.6
PL	Podlaskie	6.3	26.0	37.0
PL	Malopolskie (Kraków)	6.2	30.4	35.3
FIN	Uusimaa (Helsinki)	5.9	128.8	140.3
NL	Flevoland	5.8	83.3	82.4
PL	Lódzkie	5.8	31.3	36.9
PL	Zachodniopomorskie	5.8	35.3	40.5
LV	Latvia (Riga)	5.7	24.7	33.4
SK	Bratislavsky	5.7	91.5	101.8
PL	Świętokrzyskie	5.5	27.3	31.2
FIN	Åland	5.4	119.2	141.6
PT	Algarve	5.4	66.0	72.4
EE	Eesti (Tallin)	5.2	33.6	38.5
HU	Közép-Magyarország (Budapest)	5.2	65.7	81.3
UK	Inner London	5.2	229.8	263.4
UK	Berkshire, Buck, Oxfordshire	5.2	119.9	149.0

Source: CEC: *Third Report on Economic and Social Cohesion*. Statistical Annex. Brussels 2003

Table 11 The most dynamic NUTS2 regions of the European Union and the change of their relative development level 1995-2001

This phenomenon is not exclusive to new member states. Practically all capital regions have increased their relative level of development (compared to EU average) in the Northern, Southern and Eastern periphery. In addition to capital regions, there are a few other regions outside the Pentagon that can fulfil the growth pole function. These regions and cities are actually the 'carriers of growth' in the relevant areas. It is assumed in this scenario that EU policy will build upon this process as a very important factor of European cohesion policy and, simultaneously, a factor of European growth and competitiveness. Additionally, this development process will largely contribute to a more polycentric structure of European space and urban network. Because rapidly growing regions are stimulated further with EU policy (regional, competition and R&D) this is likely to result in environmental problems. To

mitigate this, extra attention is also given to implementing effective growth management controls, using for example the policy suggestions included in the ESDP.

5.2.3.5 Implementation of the strategy

This section will provide a short summary of the various interventions into strategic decisions and sectoral policies that are required to realise the strategy outlined above.

Agriculture: CAP in its present form is not viewed as supporting the EuroTiger strategy because it tends to work against cohesion and supports an antiquated economic sector. There is little economic reason for maintaining the current level of European exports of agricultural products, made inexpensive by lavish Pillar 1 subsidies. However, Pillar 2 does seem to hold some promise for maintaining the environmental quality of rural areas, and can be used to ease the transition of peripheral regions to the EU.

Competition: internal market rules (including public procurement) must be rigorously applied as the development of new markets necessitates unobstructed flow of capital and labour. Markets must not be distorted with national state aid (usually to failing industry), but instead aid must be given at a EU level with the goal of acting as a catalyst to allow exciting new businesses to gain their footing that could compete at the global level.

Enlargement: this is a dynamic process in this scenario. Nevertheless, this process is not exclusively guided by market expansion considerations, as in the first scenario. The deepening of integration is also an important aspect of the process. Therefore, the enlargement process is subject to limits pertaining to political, social and economic absorption capacity. The present candidate countries (Bulgaria, Romania, Croatia and perhaps Turkey) will join the community but further enlargement is not to be expected within the time horizon of the scenario. The policy approach toward individual member states or groups of member states will be differentiated to reflect the different potentials of member states.

Environment and nature: value for a clean environment and natural heritage is seen as an asset of Europe, rather than a liability, which sets it apart from its major competitors. Natura2000 is implemented throughout Europe and environmental standards applied firmly because all of Europe's citizens have a right to clean air and water. Economic development should not have to come at the cost of the natural environment. For this reason, EU support is earmarked for rapidly growing regions in order to mitigate possible environmental damage.

R&D: investment in R&D is likely to boost GDP in Europe as it has been noted that 'government-financed R&D expenditures complement domestic industry-financed expenditures on R&D … both direct funding of business R&D and tax incentives for R&D have a significant and positive impact on business R&D spending in OECD and EU countries' (EC, *2004 European Competitiveness Report*, p. 11). With regard to the Framework Programme, an evaluation of FP6 showed that it was 'almost impossible' for SMEs to participate in the 'Networks of Excellence' programme and that it was particularly difficult for newcomers to become partners (High Level Group chaired by Ramon Marimon, *Evaluation of FP6*, 21 June 2004). In EuroTigers, this problem is remedied with specific measures to ensure that new and smaller organisations also reap the benefits of EU R&D policy. Instead of taking for granted a ruthless competition for scarce financial means, European policies (in coordination with national policies) follow a strategy to encourage researchers and small businesses in less favoured regions to participate in innovation processes funded either by public means or by private resources. As recommended by ESPON project 2.1.2 (2004: 23), the European policy supports a better coordination between the Framework Programmes (FP) and the Structural Funds (SF), which enhances

the innovation capability of disadvantaged regions. The pursued strong regional policy component does in no way means a funding procedure following the 'watering can principle'. Instead, it follows the idea of strengthening those disadvantaged areas that possess the relatively best chances for catching up and becoming competitive regions with a high innovation capability.

Regional policy: the tenets of the policy proposed in the *Third Cohesion Report* (2004) are largely consistent with the EuroTiger strategy, insofar as both competitiveness and cohesion are objectives. However, EuroTiger goes further in linking the two, taking full heed of the recommendation of ESPON 2.1.2 (2004) to facilitate coordinated implementation of regional and R&D policy. The same report has shown that R&D investments in less developed regions may deliver more value-for-money as the impact on accelerating the 'catching up process' is greater.

Transport: as the EuroTiger strategy rests on the idea of polycentricity, this will become the Leitmotiv of the EU's transport policy as well. For the most part, this corresponds with initiatives already underway: the linkage of major 'peripheral' centres with the core of Europe with high-speed connections, preferably environmentally friendly modes of transport. However, a budgetary increase is necessary to translate EU-scale priorities into concrete results.

5.2.3.6 Developments and events (storyline)

In 2004-2005, the European Commission submitted its proposals for the regulation of Structural and Cohesion Funds in the fourth programming period (2007-2013). These regulations took notice of the previous debates on this subject. Net payer countries demanded more say in how their money was spent. There was widespread dissatisfaction regarding the tradition of providing support to eligible regions in otherwise relatively affluent member states. The argument is that development in these cases should be a matter decided at the national level rather than at the European level. On the other hand, eligible regions in poor member states do not have this luxury, and are more dependent on the EU for aid. A second issue during these debates regarded the apparent contradiction between Lisbon goals of achieving prominence in the knowledge economy and the cohesion aim of providing support to the most lagging regions.

These issues were politically resolved in the final decisions on the Fourth Structural Funds period, which enjoyed a large majority when ratified. Here, competitiveness emerged alongside cohesion as a major objective. A harmonization of the next Framework Programme and cohesion was also implemented. A marriage of the two — cohesion and competitiveness — pointed to supporting the fast-growing regions of the poorer member states: EuroTigers. The third major objective, territorial cooperation, was seen as a way to mitigate some of the externalities of growth. Some funds in this objective were earmarked for growth management initiatives in the EuroTiger regions, but these remained rather limited. One reason is that poorer regions in wealthier member states attempted to use this objective to regain some of the funding they had lost as a result of the new orientation.

Between 2010 and 2015 the EuroTigers grew rapidly, resulting in a more polycentric Europe at a macro level. The new opportunities and influx of money into the cities and the simultaneous reduction of CAP caused a major migration from rural to urban areas. Some of the problems of the Pentagon were also starting to make themselves more apparent in the EuroTiger urban regions, such as environmental pollution, sprawl and congestion. The next (Fifth) Structural Funds Period (2014-2020) saw a sharpening of the third objective to support more growth management in these EuroTiger regions, renaming it 'territorial management' rather than cooperation. The necessity for inter-regional cooperation was abandoned. Instead, aid was rewarded for implementing best practices in the area of

metropolitan planning and infrastructure development. The first two objectives were also merged into the 'Targeted Growth' objective. The eighth Framework Programme had as its theme: New Centres of Excellence, intending to create synergy between the rapid economic growth in the EuroTigers with the long-standing scientific quality in the Pentagon area.

By the time of the Sixth Structural Funds Period (2020-2026), the EuroTigers no longer qualified for the Targeted Growth objective, but still some funding from the Territorial Management objective. According to most economic indicators, there was little difference between major urban areas such as London, Paris and the Randstad and the Prague, Budapest, Bratislava network of cities. The major Polish cities also comprise a network of well-performing regions, but are less internationally oriented as the former. As a result of this catching up process, the countries hosting the original EuroTiger regions were able to support their own less-developed regions. At this time, the spill-over effects into neighbouring regions became apparent. This prompted a debate whether these fast-growing regions should be entitled to Targeted Growth funding since they were less the carriers of new growth, but profited by proximity to newly developed areas. It was decided to only apply Territorial Management funding here, and look to new centres for the main objective funding. These were to be found in the new Balkan member states and Turkey, which had recently joined the EU.

5.2.3.7 Impacts

With regard to the impact EuroTigers will have on overall **economic growth**, it is assumed that growth will increase. Specifically, a report to the European Commission *Delivering Lisbon*, stated that 'studies and simulations, conducted by the Commission, have concluded that the simultaneous and integrated pursuit of reforms [akin to the EuroTigers strategy] will produce an increase in the GDP growth potential of the Union in the order of 0.5-0.75 percentage points over the next 5 to 10 years' (COM (2004) 29 final/2, p.2).

In terms of **rural development,** EAGGF allocations to countries and regions will not dramatically decrease (their sum will remain unchanged) but within that sum the share of Guidance section will increase substantially, first and most acutely in the new member states and then in all countries in the EU. That means that radical structural changes will take place in the rural areas. Their accessibility will improve substantially. Structural Funds will support the generation of non-agricultural jobs and income opportunities in these areas. In the new member states, small villages will establish micro-regional cooperation for employment generation. Before 1989, a large part of income and employment in rural areas was generated through non-agricultural activities of agricultural cooperatives (mostly supplying services for large enterprises). After the political and economic change this source of employment and income disappeared. The acquired skills and infrastructure are still there and can be re-utilised, certainly in other organisational and ownership forms than in the past. These measures are indispensable in countries where the share of agricultural employment is still very high.

The **transportation network** will show a smaller rise in volume in the Pentagon than the previous scenario, but higher pressure outside. Connections between EuroTiger centres and the Pentagon will experience the greatest relative increase in traffic.

Migration will be a rather large-scale and dynamic process in this scenario, but not so unidirectional as in the first scenario at the macro level. For many of the new migrants, the destination of the migration will be the new growth centres outside the Pentagon area. This migration will be even more intensive than that to the traditional destinations, because, in these areas, more people will be affected by rural structural change. As a result, the Pentagon area will be partly relieved from a part of the migration pressure. Regarding the origin of migrants, in the new member states domestic migration prevailed (from less

developed and slowly growing regions toward dynamic ones), whereas in the old member states external sources of migration dominated. This was accompanied by additional social and cultural tensions.

5.2.3.8 Territorial image in 2030

As a result of EuroTigers, territorial cohesion will increase at the macro (European) level as secondary regions acting as carriers of growth — like Prague, Budapest and Warsaw — catch up to and in some respects even overtake comparable regions in the Pentagon. Territorial cohesion in Europe will however decrease at the national level as more competitive regions seize new opportunities, and are actually stimulated in doing this by the EuroTiger adapted structural funds. These increasing disparities can be regarded as transitional and provisional however. Filtering down and 'spread' and 'pull' effects will sooner or later have an impact upon the growth of the other regions of the respective countries, though this internal catching up process might prove to be very gradual indeed. Nevertheless, within countries there is always a budgetary redistribution process, so that poorer regions are beneficiaries of higher income generation in the growth poles, even in the short run.
As EuroTigers predicts a higher level of economic growth as a result of the targeted policy, we can expect changes in land-use in the most affected areas. Unlike 'best foot forward' this does not concern the largest metropolitan areas in the Pentagon, but smaller cities therein and larger centres in the periphery. Consequently, the urban development patterns discernable in this scenario are increasing pressure around the EuroTiger urban concentrations for space, reflected in rising land prices and rents. Suburbanisation around these centres and gentrification of the most attractive parts of the cities are to be expected. The influx of external investments will allow local decision-makers to make improvements in the condition of the quality of life of the inhabitants, but most probably this will be targeted towards amenities to attract knowledge-workers.

5.2.3.9 Summary and conclusions

This scenario envisions the implementation of the Lisbon strategy as it was formulated in 2004, with reference to cohesion and sustainability. There is an obvious link to be made between these economic ambitions and the three-pronged strategy of the ESDP. For this reason, the concept of polycentricity is also well adapted to the EuroTigers strategy. The outcome of the scenario is a slightly higher total GDP growth than the 'best foot forward' scenario and considerably higher growth than the next two scenarios. This is due to improved effectiveness of stimuli. The effect on territorial cohesion will also differ from the previous scenario. Here, it is expected to increase at the macro level (rather than decrease) but decrease at the meso level.

5.2.4 Economy Scenario 3: Blühende Landschaften

This scenario describes a situation where the EU pursues a strong policy in favour of cohesion. Lagging regions and sectors are bolstered in order to allow them to achieve a status fitting for a civilised Europe. Matters of sustainability and cultural heritage are major contributing factors to this strategy: especially clean industry and knowledge-oriented businesses are stimulated in lagging regions, making it unnecessary to relocate to find work.

5.2.4.1 Scenario hypothesis

In Blühende Landschaften, support is given to the most lagging regions to bring them to a certain EU minimum standard. EU and national structural support will continue to flow to less developed member states and regions. This includes support for infrastructure and environmental investments, but also for human resource developments. The goal is to make all European regions self-sustaining and have a reasonable quality of life; nobody should be forced to abandon his or her homeland to find a job and no European citizen should live in abject poverty.

5.2.4.2 Driving forces

The main driving force behind this scenario is the growing dissatisfaction in Europe of the unsustainable development path it has been following, and coping with the wide rift in economic position between old and new member states. Ideologically there should be one united and egalitarian Europe to provide a humanitarian alternative to North American hegemony. Gradual but steady economic growth is seen as preferable to the booms and busts that typify more laissez faire economies. Another motivation of this strategy is the more opportunistic desire by a number of vested interests to see cohesion support continue flowing to their regions. Finally, although not necessarily a 'driving force' *per se*, there is the general institutional friction to reform in this scenario, which plays itself out at the EU level as legitimating its existence by offering subsidies.

Political climate: the costs of sprawl and mobility are made apparent by a number of reports critical of the current neo-liberal discourse, raising public sympathy. Europe must compete in the world in terms of *joie de vivre* and not purely using sterile GDP indicators. The 2004 Eurobarometer demonstrated that the European public are of a similar opinion: they do not necessarily equate 'quality of life and economic performance' either (EC, 2005).
Enlargement: having such disparities within Europe is seen as unacceptable, as reflected in a statement by Commissioner of regional policy Hübner that, 'it is hardly surprising, in view of enlargement, that the Commission has set real economic convergence as the main objective for the future. In financial terms, this would absorb some 78% of total resources over the period of the next financial perspective' (EC, Speech/05/70: 3 Feb. 2005). The intent, of course, to be able to reduce this amount gradually as lagging regions catch up.
Governance: European institutions will continue to be dominated by intergovernmental decision-making in which business interests are only one factor of influence. Trade unions, farmers' unions, national, regional and local administrations, and — what is most important — voters' opinion are also factors to be considered.

5.2.4.3 Contextual elements of the strategy

With the subsequent waves of enlargement, the number and share of small and less developed countries have increased significantly in the European Union and so did their influence on European decision-making. Being net beneficiaries of Community budgetary allocations, their interest is to maintain a high share of cohesion and structural funds and —

perhaps to a somewhat lesser extent — that of agricultural supports. It is probable therefore, that contributions to the common budget cannot be reduced to the extent that net contributors would like to see. What can be perhaps achieved, it is the concentration of cohesion and structural supports to the least developed — mostly new — member states and their regions. In this respect, there is a kind of agreement between the largest net contributors and the poorest members. Cohesion and structural support will be spent in the least developed and peripheral areas, where it is really needed, but its effectiveness and the capacity to absorb it efficiently are ambiguous.

5.2.4.4 The Blühende Landschaften strategy

The goal of the Blühende Landschaften strategy is to produce a Europe in the Twenty-first Century based on the idea of sustainable and even economic development and ecological responsibility. The intent is to project these European values as an alternative to the uneven, unstable and hard capitalism of the United States and Asia. The most pressing task at the dawn of the new millennium is to bring up the most lagging regions up to a level worthy of the European Union. Some areas will be able to benefit from the implementation of contemporary and environmentally friendly technological solutions, without having to pass through the phase of dirty industry. Once a certain level of economic development has been achieved throughout Europe, the emphasis will shift on maintaining the high quality of life, peace and stability.

5.2.4.5 Implementation of the strategy

This section will provide a short summary of the various sectoral interventions that are required to realise the strategy outlined above.

Agriculture: as the least privileged regions in Europe are rural in character, and even more so with the 2004 enlargement, CAP will continue to command a large portion of the total EU budget. However, unlike the current regime, CAP will be changed to benefit the poorest areas with little emphasis on production, and much more on the conservation of natural and historical heritage of rural areas. Consequently, a major shift from Pillar 1 to Pillar 2 support will occur. In addition, regions in the wealthiest member states will be excluded from CAP support, but these member states will be given the option to provide like support from the national budget if they wish to do so.

Competition: state aid policies will be relaxed in so far as national funds are injected to sustain ailing industries in poorer regions, subject to environmental controls.

Environment and nature: much more emphasis will be put on a clean environment. The open space in peripheral regions is harnessed to generate renewable energy, and subsidies are available for this purpose via regional policy.

Enlargement: in this scenario, the main objective of the European Union is deepening integration. More functions and tasks are delegated to the supranational institutions, but without the fundamental reform of these institutions and of decision-making. Bulgaria and Romania will be admitted to the EU, but further enlargement will be postponed for an indefinite period.

R&D: under the burden of increased cohesion spending, the framework programmes will lose support, except insofar as R&D policy can be administered as a kind of aid in poorer regions (e.g. subsidising exchanges of personnel and information to lagging regions). The objective regarding Europe's development towards the globally leading knowledge economy is placed on the back burner. The gap between EU and US recorded in the early 2000s (see Council of the European Union 2004: p. 10) widens in the following decades.

Regional policy: undergoes a 'back to the basics' reform where the majority of structural funds are targeted towards cohesion support. Other objectives (e.g. cooperation) are secondary, and must serve the primary regional policy goal of cohesion.

Transportation: more emphasis is put on sustainable modes of transport, especially to connect peripheral regions. Additional congestion in the Pentagon is not viewed as a Community priority, but something to be tackled at the member state level.

5.2.4.6 Developments and events (story line)

The largest enlargement in European history was hailed as a great triumph. Never before have so many people come together under a single political entity in a completely peaceful way. The structure of the European Union as a voluntary network united by a body of common values and laws seems more adapted to the challenges of the next century than the seemingly antiquated sovereign nation-state (Rifkin, 2003). By working together, the European member states can achieve a level of refinement and social equity unthinkable only decades ago. One of the first things that must be done in this regard is a shift in mentality from blindly following the practices of the United States and Japan in supporting elitist R&D to embracing the welfare principle. As a first step in this regard, the European Commission develops an alternative economic indicator to rectify some of the distorting elements of GDP: the Welfare Indicator. From this point onward, rather than being an end in itself, GDP will only be part of the discussions around economic well being in European politics.

In 2005, the financial perspective for the Structural Funds period 2007-2013 was approved with minor amendments. These pertained to the newly established 'Competitiveness for growth and employment' objective and to a lesser extent 'territorial cooperation'. Since nobody knew for certain who would be the beneficiary of the new funds, there was no serious resistance against the proposals. The first objective (cohesion) remained the highest in terms of budget and profile. In addition, like in every programming period which had preceded it, the Structural Funds saw an increase in its budget. A year later, another agreement was reached over the future of CAP which postponed the reforms to a later date, the issue being regarded as far too politically risky to take at the present time. After the failed referenda over the Constitution and unsuccessful attempts by the British presidency to engender far-reaching reforms in agricultural policy there was little enthusiasm to continue in this vein. In addition, the political impact of the 2004 enlargement began to make itself felt.

The increase of the agricultural and cohesion budget was approved partly as a consequence of the large number and significant voting weight of – old and new – beneficiary countries in the Council of Ministers. Some countries, first of all those neighbouring the new member states (Italy, Austria, Greece and Germany), insisted that the increased allocations should be exclusively used for environmental improvements, transport infrastructure, risk prevention, water management and for the conservation of natural and cultural heritage. They were afraid of a situation in which cheap labour costs and EU and national support to SMEs in the new member states would result in a 'rent shifting' situation that would seriously jeopardize the competitiveness of their own enterprises. They argued furthermore, that new member states could afford low corporate taxes only because they can compensate the budgetary losses by generous Structural and Cohesion Funds allocations. They required therefore that beneficiaries of Structural Funds should raise their corporate tax rates to the EU average.

Some of these demands were accepted by the Council of Ministers. Taxation was harmonized and more attention was paid to sustainability in securing structural funding.

However, these funds were still used to promote economic development in the new member states. What finally convinced the bordering EU15 countries was the argument that, without such economic development, they would receive a large influx of immigrants from these countries when the labour market unified, and consistently thereafter due to the sustained disparities. A consensus began to emerge that Europe must achieve a certain balance in its levels of economic development, if for no other reason to preserve its rich cultural diversity. Poles should not be forced by market forces to leave Poland, but should have ample opportunities in their own country. In the implementation, this discourse was, in the context of the Structural Funds (i.e. regional policy), brought down a level of scale: all European regions should be able to offer a reasonable quality of life and employment opportunities. In 2012 the term 'Blühende Landschaften' was coined by the then EU Commissioner for Regional Policy.

The next structural funds period saw the definitive introduction of the Blühende Landschaften into EU policy. CAP became subordinate to the structural funds, which, in turn, adopted a 'back to basics' strategy: fostering (territorial) cohesion. Less developed regions especially in new member states enjoyed generous Structural and Cohesion funds support. The environmental situation improved substantially, and by 2020 the damage incurred by decades of Communist neglect were all but reversed. The Commission preferred to invest in railway network improvements for passenger transport and waterways for freight, rather than motorways. New national parks were established, the surface of protected areas increased substantially, and new cultural facilities built. Tens of thousands of government and local government officers participated in training courses aimed at increasing their skills in the management of the Structural Funds. This was badly needed since small and medium sized enterprises did not exist in the new member countries before the political and economic change. All such businesses were established in the last fifteen years, and did not have the time to accumulate resources. In order to allow them to compete on equal footing with EU15 businesses, or globally, investments and know-how would need to be shared from the rest of the EU.

The heavy burden of enlargement, in terms of Structural and Cohesion Funds supports, discouraged net payer countries from further enlargement. Bulgaria and Romania joined the European Union, but further enlargement was postponed to the indefinite future. Switzerland and Norway, unwilling to pay the high price of membership, refrained from accession. Consequently, in 2030, the EU faces more or less the same problems as in 2005. The problems and tensions could not be solved because the different and confronting interests blocked change and essential reform.

5.2.4.7 Impacts

The framework of the Blühende Landschaften strategy proved flexible and robust enough for enabling the development of the European economy without major crises and shocks, but not adequate for switching it over to a substantially higher rate of growth. One of the main reasons for the lack of dynamic **economic growth**, such as in the previous two scenarios, is the failure to harness the potentials of the knowledge economy. Inefficiencies continue to exist in this area regarding the linkage between industry and science, the underdeveloped competition between universities and a lack of peer-review procedures for funding universities (Commission of the European Communities 2004, p. 179 with reference to Gordon 2004). Deficits also continue to exist regarding sufficient solutions for securing intellectual property rights and non-bureaucratic immigration procedures for top research personnel from outside Europe. The brain-drain of young graduates towards the US, already recorded in the early 2000s, is ongoing in this scenario. As a part of the equity-oriented policies pursued by the European and national authorities, support programmes to improve the skills of the (long term) unemployed will be implemented. However, the disadvantaged regions show an overall weak economic performance, and due to the absence of strong

development cores within these areas, job opportunities remain scant. Younger, well-educated residents continue to migrate towards the agglomerated spaces outward their region, seeking employment opportunities. Elderly people often become dependent on social benefits, which in turn, limits public spending for investment purposes.

In this scenario, the Pentagon loses its competitive edge in the world economy as funds are redirected to other regions in Europe, and a net loss of efficiency is produced as subsidies are disbursed according to need rather than promise. On the other hand, the environmental quality, the protection and maintenance of cultural qualities and the standard of living improve in previously lagging areas.

With regard to **rural development**, support for agriculture will be the largest in this scenario, because contrasting interests will not enable to reform the CAP radically. Consequently, 'stabilisation and peace' in rural areas will be purchased at the expense of other regions, cities and social groups of the population.

This scenario will also have different patterns of **migration**. One of the main objectives of this scenario is to create employment and income for people in their native country and region. The large transfer of resources — through EU cohesion, structural and agricultural policies — should serve this objective. But if the structure and regulation of these funds will be inadequate for creating more jobs and income, then the huge transfer of resources will not bring the expected results. Consequently, despite the massive resource transfer, disparities in employment will not decrease substantially and the intention to migrate may still be strong in many parts of the European Union.

5.2.4.8 Territorial image 2030

Looking back from the present – 2030 – Europe has changed a lot, but its basic situation and its institutions are not very dissimilar to those existing 25 years ago. On balance, disparities among countries and within countries are expected to decrease. The decrease of disparities among countries is due to two factors: first, that in the absence of massive R&D and innovation incentives and pressures even the leading European regions will not be in a position to carry out the breakthrough in productivity and high-tech, second, that EU and national cohesion and structural policies, focusing on most peripheral and underdeveloped regions, contribute largely to this convergence process.

To assess the probable impacts on urban development, we need to look to the mechanisms of the structural funds. One of the basic objectives of cohesion policy in the next programming period (2007-2013) is to improve the accessibility of services of general economic interest for every European citizen. This is the basic idea of urban development in this scenario. Cohesion and structural funds will be used to improve the provision with basic community services in all towns and cities, independently of their size and profile. Consequently, the development of urban areas will be the most balanced in this scenario. Small towns will have the same chance to receive support for improving their infrastructure, as large ones. EU level urban policies will have the most influence on actual developments in this scenario. The reconstruction and revitalisation of the central part of cities and towns will enjoy priority. EU cohesion and structural policies will not support extensive urban sprawl. The accessibility of basic services in every area will certainly slow down the excessive population concentration in large cities. Using ESPON terminology, the favoured urban formations in this scenario are FUAs and PUSH areas, and less MEGAs and PIA areas. However, the major driving force of the urban system is, undoubtedly, the economy, business and economic growth. It is the economy which creates the basic hierarchies and networks in the urban system. In absence of dynamic growth, no high level infrastructure and service provision can serve as substitute for the lack of growth poles, 'spread' and 'pull' effects. This will translate into reduced urbanisation pressure.

5.2.4.9 Summary and conclusions

Of all the scenarios, this seems the least likely to occur, given the current disposition of member states and globalisation tendencies. It has also been stated that 'it would be a political mistake to create a new division in Europe between a West that gives and an East that receives' (Speech/05/70: 3 Feb. 2005). In the end, it could not only result in the failure of countries like Norway and Switzerland from joining the EU, but erode the support of net-payer countries. In the end, the EU could lose legitimacy, bringing with it a revival of the nation state.

5.2.5 Economy Scenario 4: National Revival

This scenario describes a situation where support for European cooperation wanes, and nation states reassert their authority. Both competitiveness and cohesion policies are reduced, as well as other sectoral policies implemented at the EU level. Competition between member states increases, and territorial disparities increase as well.

5.2.5.1 Scenario hypothesis

In the National Revival scenario the European Union takes a more modest approach to developing its territory. As such, it occupies the lower left segment of the system of axes, characterised by low equity and low efficiency ambitions at the EU level. The basic hypothesis is that member states reassert their position in matters of economic and spatial development. The official argumentation for this position is the subsidiarity principle, but there exists also an undercurrent of popular dissatisfaction with the EU which is exploited in several key member states. In National Revival, national governments do not comply with their commitments to European policy objectives and regulations. Obstacles to free movement of labour are maintained, and the period of derogations extended, whilst the regulations of EU competition policy are more frequently evaded. Over time the advantages of integration become less and less exploited and, simultaneously, the effectiveness of cohesion policy reduced.

5.2.5.2 Driving forces

The main driving forces in this scenario are a growing dissatisfaction with Europe and a populist anti-EU movement in many key countries. The common currency, the Euro, and the enlargement are blamed as contributing to sluggish growth and high prices. Some of this sentiment originated with a key decision to limit EU cohesion support (and other support as well) to the most needy; in the more affluent countries there was less enthusiasm for redistributive policies to relatively distant regions. In these nations, the presence of the EU was felt primarily in negative terms (i.e. regulations and standards), further increasing anti-EU sentiment.

Critical reports: as in the first two scenarios, new information about the failure to successfully implement the Lisbon strategy provokes a powerful political response. Unlike the other scenarios, however, this is not interpreted as signalling a need for a new direction in policy, or intensifying policy in order to meet the Lisbon objectives, but results instead in a fatalistic view that Europe is incapable of delivering results. Throwing money at problems at the EU scale is deemed counterproductive: firms are better served by more local level approaches, and particularly by lower taxes. Curtailing EU policies in favour of overall tax reductions is therefore advocated.

Governance: trade unions, farmers and other professional organisations rally against specific imports, migrant labourer, and outlets and shops of trans-national enterprises. National elites make political concessions to offer more market protection. Sometimes these decisions are intertwined with self-interest of supporting state-owned businesses. Subsequently the integrity of the single market is compromised, and economic integration is slowed and in some cases, even reversed.

5.2.5.3 Contextual elements

The political backlash against Europe was already evident in 2004-2005 during the Dutch, Luxembourg and British presidencies. Although the historic enlargement of the European Union to include former communist countries dealt the decisive final blow to the cold war, this fact was greatly overshadowed by fear of job loss and exacerbations of 'net payer'

status among many Western European nations. Guarded beginnings of a dialogue with Turkey regarding possible membership were equally greeted with consternation and disbelief amongst an increasingly Euro-sceptic public. Finally, the defeat of the Draft Constitution in referenda in France and the Netherlands made it painfully clear that Europe is not in touch with the public. As the EU seems to be losing legitimacy, member states rush in to fill the political vacuum, citing the subsidiarity principle as justification for this.

5.2.5.4 The National Revival strategy

In terms of policy direction, there is no real change from the current situation at the EU level. Consequently, EU is expected to perform the same functions and tasks as before, but only with more limited instruments, possibilities and competencies. The EU will not be in the position to exert a significant influence on developments in the member states, while — before the public — it will continue to share the responsibility for these developments.
Economic policy is faced with a dual challenge. First, the reforms suggested in the framework of the Lisbon agenda, are to a large degree decentralized to the member states. Some countries are in a position to build or maintain world-class R&D facilities, but without EU subsidies the amount of pan-European scientific exchange wanes. Most countries forge links with the United States in an ad hoc fashion. Second, EU cohesion policy is weakened as a by-product of reduced funding and a re-nationalisation of regional policies. The structural funds increasingly resemble the cohesion fund: they given only to lagging countries, rather than regions, and administered at the member state level. As a consequence of the more modest responsibility and funding at the EU level for regional policy, two different policy strategies at the national level are imaginable: a) national policy does not pursue an explicit regional policy; b) national policy to a certain extent conducts an own regional policy.

5.2.5.5 Implementation of the strategy

This section will provide a short summary of the various interventions into strategic decisions and sectoral policies that are required to realise the strategy outlined above.

Agriculture: the National Revival strategy feels that the EU has had too much influence in the agricultural sector. In this scenario CAP is reduced significantly, being retained only insofar as it is necessary to prevent gross trade imbalances from emerging. At the member state level, agricultural funding is sometimes retained under pressure of farming interests. This is most pronounced in the more affluent member states with a significant rural constituency.

Competition: the National Revival strategy advocates the abolition of state aid, liberalization of public companies and enforcement anti-monopoly regulations. The intended result is that competition would increase *between* European regions as well as globally, thus providing spin-off benefits in terms of increased GDP production. Member states are expected to follow this strategy, since it is in their long-term self-interest to do so, so few EU-level rules are implemented to enforce this behaviour.

Enlargement: there is little interest in enlarging the EU in the short term, given the reservations of member states only (Bulgaria, Romania and perhaps Croatia — even if with some delay, will join the EU). However, as the reforms of the National Revival strategy are implemented, it becomes increasingly clear that enlargement can proceed with fewer consequences for existing member states. As a consequence, after a long period of relative stability, many new members are invited to join the Union — stretching from North Africa to former Soviet Republics — since the EU nations have already abolished a great deal of the structural funds, agricultural policy and R&D funding that would go to these new members,

and enacted measures (tariff walls, limits on labour migration) to lessen any financial or economic effects.

Environment and nature: the National Revival strategy views the environment as one of the few areas where the EU remains indispensable, since the effects are felt over national borders. However, a more critical view is taken at the specific measures taken: they must all pass the test of subsidiarity, or be decentralised. Nature policy does not fare as well as environmental policy, and the implementation of this policy comes to the discretion of the member states. In some countries, Natura2000 is blamed for blocking projects vital for economic development and competitiveness, and support for these policies wanes.

R&D: widespread criticisms of Framework Programmes that require large-scale European cooperation result in initiatives to renationalise R&D, allowing researchers to intensify their work in their own language. As a result there is a reorientation of research activities along linguistic lines (Spain with Latin America, the German block in Europe, etc.) and ad hoc scientific research network development with Asia and the United States. Obviously, some member states are in a much better position to participate in these networks than others. A nationally based R&D strategy is all but unaffordable for less developed member states, while richer countries that have benefited from cuts in the EU budget can afford extra spending on universities, R&D facilities and interregional transport infrastructure.

Regional policy: the National Revival strategy regards the most effective means to promote growth and prosperity in Europe as allowing member states to compete effectively in a global economy. In order to do this, the burden of EU taxes must be reduced and the least competitive member states given a quick boost to allow them to operate at a (reasonably) equal footing. Specifically, EU regional policy is reduced and targeted to only the poorest member states. The philosophy is that after a few years, they should be able to run their own affairs. This is not to say that strong regional policy will vanish from Europe. Member states may still — at their own discretion — conduct transfers to aid lagging regions, such has been the case in countries like Italy and Germany. Generally, these policies vacillate in intensity as the national political climate shifts between liberals and socialists.

Transportation: the ambition of the EU to adopt a more strategic approach to designating new priority projects for TENs is widely criticized and abandoned. As in the 1990s, new projects are essentially those previously identified by member states and nominated for EU support. Enthusiasm for cross-border and other politically difficult projects wanes as the level of funding at the EU level is reduced.

5.2.5.6 Developments and events (storyline)

An important driving force regards the failure of the EU to institutionally deal with the 2004 enlargement. The addition of ten new member states increased the heterogeneity of the European Union substantially, making cooperation between EU member states more difficult and eroding feelings of shared commitment to objectives such as territorial cohesion. At the same time, decisions continue to be made on the basis of consensus or require a large majority, resulting in gridlock in EU decision-making on many key issues. This is seized upon by national politicians sceptical of EU involvement in what they consider their country's internal affairs.

This political shift is crucial in producing the National Revival. Already in the first half of the 2000s, the rise of national pride and populist politics was apparent in Europe, replacing virtually a decade of 'Third-Way' dominance. This shift in mentality has significant implications for the way in which the role of the EU in various member states is conceived. Increasingly, the EU is used as a scapegoat for national ills. The populist New Right is

successfully able to blame part of social-cultural tensions, resulting in part from immigration from outside of the EU, on lax border controls and ineffective asylum policies. In some countries, as minorities from one EU country move to others, these politicians increasingly advocate reinstating restrictions to movement within the EU. This is not necessarily confined to old member states; some new member states encounter for the first time an influx of immigrants from developing countries. This fuels an anti-EU sentiment, especially given the reduction in the expected structural funds and CAP aid.

Governments were willing to cooperate only if the countries concerned were sufficiently homogeneous. Soon, a club of rich and powerful countries was born within the European Union. This club intensified cooperation in various policy fields, including taxation and social policy, through 'reinforced cooperation'. This was a legitimate method of the Community, originally intended to create a 'two-speed' Europe, in which countries that lag behind would catch up with the frontrunners after some time. But new member states remained outside the core group because they were either unwilling or unable to join. Consequently, as early as 2010, 'two-speed' Europe ended up clearly in a 'two-tier' Europe where the division acquired a more permanent character.

The main feature of this scenario is that the capacity and willingness of nations to contribute to the Community budget is reduced. The centralised resources of the Union are reduced in second half of the 2010s to less than 1% of the overall GDP of the Community. Opposing interests do not enable a structural reform of EU expenditures and the reform of the decision-making system in the EU will also be delayed. Because of the criticism and refusal of certain vested interest groups and political forces, a diminishing importance and role will be assigned to EU cohesion policy and to public policies in general: little government intervention in terms of direct subsidies, but more in terms of protecting the functioning of the market. Under severely strained budgets, cohesion policies are largely ineffective. With regard to R&D, for example, those research institutes and universities which already belonged in the early 2000s to the top ranked will be able to maintain their favourable position, but – due to the lack of institutional changes – the rest show signs of mediocrity. The absence of EU-policies designated to support inter-regional cooperation in the field of R&D enforces this negative trend. This is also interpreted as the futility of conducting R&D policy at the EU level, rather than eliciting a cry to reinstate EU R&D expenditures.

Many mature European industries became protected from outside competition through trade barriers. Additionally, national elites, disregarding EU competition policies, began to apply semi-legal or illegal support instruments in respect to public procurements, exceptions and preferred treatments. This was true in particular for agriculture, but also for network industries. Trade unions and other vested interest groups in the core countries exercised serious pressure on national and European level as well, in order to minimise wage dispersion. They formed a powerful lobby group in core Europe to hold up reforms in welfare state managements. In the new member countries, first of all, entrepreneurial organisations and Farmer's Unions exercised pressure on governments.

In the 2010-2020 period EU budgets continue to be slashed, and the resulting drop in policy effectiveness is interpreted as proof that these policies are inherently flawed. The bureaucracy in Brussels was seen as unnecessarily interfering, undemocratic and non-transparent. Countries began to play down the power and importance of supranational decision-making, intensifying the National Revival strategy after 2020. As policies are repealed at the Community level, new bilateral treaties are made between European nations to fill the void. These often bind certain areas together: the Benelux intensifies cooperation, for example, more than in the past. At the same time, new members are allowed to join the Union, as membership has lost much of its former meaning. Norway joins the union, now that most of the objectionable EU legislation has been decentralized, but Switzerland remains outside more as a matter of principle. Turkey, Ukraine, Morocco and the Balkan

countries join in the course of the 2020s. This is received with apathy than antipathy by old member states, as migration within the European Union is increasingly restricted. By 2030 the European Union is primarily regarded as an internal market, having disposed of much of its agricultural subsidies and structural investment support. These are now dealt with at the national level. Increasing mobility of capital intensifies policy competition within various cooperating national blocks, even as they attempt to restrict the mobility of labour.

5.2.5.7 Impacts

The National Revival strategy is expected to have significant ramifications for not only the spatial distribution of wealth, but also **net economic development** in the EU. According to current president Barroso, the 'costs of non-Europe' have been substantiated through a large volume of academic evidence. One can argue with the figures, of course, such as the contention by the European Commission, that GDP is almost 2% higher and foreign direct investment twice as high as it would have been without the creation of the internal market.[24] Nevertheless, it is reasonable to assume that if the workings of the internal market were to be undermined, as in the latter part of this scenario, that this would have perceptible repercussions for economic growth. In addition, given the premise in all scenarios of ongoing globalisation and importance of the knowledge economy, not achieving the Lisbon goals will also have a macroeconomic price tag. Therefore, it is safe to assume that by 2030 economic growth at the macro level will have slowed as a result of the National Revival strategy.

With respect to territorial cohesion, a few remarks can be made about the spatial distribution of economic growth resulting from the National Revival strategy. First, given that regional policy is decentralised to a large degree, poor regions in poor member states will probably not get the help they need, unlike less poor regions in wealthier member states. The weakest regions in Europe will most likely be 'written off' in this scenario. There will be a widening of disparities between nations, or at the meso level. Within nations, disparities could decrease, depending on the degree to which national-level cohesion policies are implemented (less in the UK, and more in France, for example).

Changes in **rural development** will also be highly dependent on national politics. As a whole, CAP is reduced, but so too are competition policy controls on how much state aid can be disbursed to various industries, including agriculture. Vested interests of farmers and national politicians depending on rural voters will undercut efforts to reform and restructure agricultural policy in many countries. If national governments should want to maintain the level of support to agriculture, then they will be forced to contribute from their own resources. The first steps in this direction have been already taken during the last phase of enlargement, when new member countries were allowed to complement the direct EU support given to their farmers, and amounting to 25% of that of farmers in the old member states, with 30% from their own resources. The development of rural areas will be, therefore, differentiated. Rural areas under favourable natural and economic circumstances or with generous national subsidies will fare rather well, while rural areas and farms in unfavourable circumstances will remain among the lagging and problematic areas of the EU, ridden by unemployment and poverty. In absence of this support, land will be simply abandoned and exposed to different environmental hazards and to deterioration.

This scenario differs markedly from the others in terms of **migration** and demography. One of the fundamental achievements of the European integration was the free movement of labour within the Union. It became subject of some restrictions and withdrawals during the last enlargement. Old member states have applied different derogations for different periods of time in this respect, signalling the first step towards renationalisation of decisions on

[24] European Commission (2003) *The Internal Market: ten years without frontiers*, cited in Leonard (2005) p. 81.

movement of people, capital and goods. As the scenario progresses, and political tension mounts with falling economic growth, nations respond by imposing tariffs on goods and restricting movement. Meanwhile, a radical ageing will take place in most EU member countries, and labour — especially highly skilled labour — will become bottleneck of economic growth and development. If politicians will realise this situation late, and — especially — if they will act to facilitate labour movement and migration only with substantial delay, then the only possibility will be to attract migrants from outside the EU. Namely, ageing and natural decrease of population will take place in most new members even more dramatically than in the old member countries.

5.2.5.8 The territorial image 2030

After the application of the National Rival strategy, there are some points to be made about how it has affected **economic development**. It is clear that re-nationalisation and national isolationism are most harmful for small, less developed countries. Their market is small; their most important driving force is the assimilation of existing technology and organisational practices of larger countries. Consequently, economic development disparities will increase between countries in this scenario, to the disadvantage of smaller and less developed countries. Simultaneously, disparities within countries might decrease for two reasons. First, leading regions cannot fulfil the breakthrough in the absence of intensive inflow of capital, knowledge and innovation. Secondly, lagging regions and agricultural regions will be more 'protected' from European and worldwide competition through national subsidization and bailout of languid enterprises owned by the state and/or managed by the national elites. But it can also occur that even disparities within countries will increase. It might be the case, if in the course of 're-nationalisation' of structural policies the national governments spend a considerable amount of money for universities, motorways and the like which de facto strengthens the agglomerated spaces whereas the peripheral areas might further fall behind. In sum, overall economic growth is the smallest in this scenario.

In this scenario, **urban development** will not transcend national boundaries, especially in less-developed member states. Cities in border regions continue to be in peripheral and disadvantageous position, since, at present, the trade between regions within the same country is about 80 times more intense than is trade between two regions which are in two different countries, and, in this scenario, this situation will not change substantially in the future (Centraal Planbureau 2003). It would follow that capital cities of the countries would be in an exemplary position: remaining the centres of national power, wealth and control. This applies less to capital cities of smaller and less developed countries, whose functions reach only as far as national borders. They will not be in the position to assume and fulfil European, or even trans-national central functions, let alone becoming fully integrated in the network of European or World metropolises. From a European point of view, they still remain 'provincial' cities.

5.2.5.9 Summary and conclusions

By and large, the combination of weak efficiency oriented policies with a weak cohesion policy at the European level coupled with re-nationalization tendencies in terms of structural policies, have ambiguous impacts. A smaller budget for cohesion purposes at the European level will deteriorate the chances of the less developed countries (and their regions) to catch up economically. Against this background, regional disparities between the states in Europe are likely to become greater. Furthermore, the absence of a strong European structural policy which had a broad focus on R&D and training activities until 2013, will weaken not only the innovative capabilities of the disadvantaged regions but the overall innovation performance in Europe.

6. Thematic scenario 'Governance'

Alexandre Dubois (Nordregio)

6.1 Scenario baseline

6.1.1 Present situation and trends

The issues of territorial governance have become a real concern at different levels of government, the EU and the Nation-State not being the least, and have been driven by some key-notions that have found a strong echo in the world of policy-making: subsidiarity, territorial cohesion, effectiveness, transparency… The latest 25 years have therefore witnessed some important changes that are related to the modernisation of the mechanics of governance inside the EU and its member-states.

The European Union in itself is a governance project between countries. In order to have a better insight on the issues of governance inside the EU, it is worth, as a first step, analysing the theoretical framework of EU type of governance. During the 60s and 70s, two main theories were intending to explain the style of policy-making at the EU level. First of all, *neofunctionalism* was based on the belief that even if states were the prime instigators of the EU integration process, other levels, whether sub- or supra-national, will take the process further by ways of 'political spillovers' (Bache, 1998). The competing theory, *Intergovernmentalism*, is focusing on the central role of the state as a point of entry for supra and sub-national authorities, and can be seen as the 'ultimate arbiters of key decisions' (Bache, 1998). The national governments would then serve as guarantors of important domestic policies (Bache, 1998). Those traditional theories have paved the way for more renewed views on the EU style of policy-making, more adapted to the contemporary shape of the EU. *Multi-level governance* and *Liberal Intergovermentalism* can therefore be described as follow-up of the more traditional theories, respectively Neofunctionalism and Intergovernmentalism.

Before attempting to describe the current situation as regards the theme of territorial governance, it is worth highlighting the important notions that will lead us in our reflection throughout this paper. The first one is the concept of multi-level governance which aims at involving the stakeholders inside each level of authorities (Marks cited in *Böhme et al.*, 2004) on a more equal basis, contrarily to a more hierarchical system. The second notion that will be widely used in this paper is the multi-sectoral approach to policy-making, coordinating sectoral policies in order to optimise their spatial impacts. Finally, a territorial approach to policy-making, where the territory is at the heart of the policies, by integrating both notions of multi-level governance and multi-sectoral approach in order to achieve a strategic vision and integrated policy-making for this territory, has been lately discussed at the highest level of the EU (Informal ministerial meeting, 2004).

As regards the multi-level approach to governance, it is seen as a way to redistribute the responsibilities between the different levels of government, from the EU to the municipalities, following the concept of subsidiarity, by trying to define the most appropriate level of action for a particular issue. But this later concept can be also understood as a way to improve the horizontal type of coordination, that is to say between organizations at the same level, one of the most obvious example being the European Union, fostering

cooperation and policy coordination between its member-states. In most of the EU countries, the national level has been the most important level of authority, which is due to the tight link between the building of democracy and the concept of Nation-State (Loughlin, 2001). Inside each country, the repartition of the responsibilities for policy-making depends on the structure of the state itself (federal, regionalized, decentralised, centralised). In this pattern, the region is often perceived as the 'weak' point (Jönsson *et al.*, 2000) and it is then not surprising that most of the radical changes that occurred in the latest 25 years concerned this particular level. Indeed, the process of political regionalisation that is underway in many European countries has enabled to put the region in a more central position in the political and institutional system. This process can be described as heterogeneous and asymmetric even inside the different member-states, as sometimes regions have different degrees of autonomy and related competences, like in Italy or Spain. This process is also in accordance with the vision of a 'Europe of the Regions', putting the emphasis on the Europeanization of the sub-national levels. Moreover, the way regions operate is different from the one of Nation-State, and can therefore be perceived as a 'principle of organisation in civil society' (Keating in Le Gales, 1998), differing in the sense that they often offer other approaches to management, such as partnerships. At the local administrative level, the delegation of powers from the state, associated with a stronger involvement of market forces (especially via taxes), has enabled the authorities, in some countries, to be more involved in the conception and implementation of its policies (Nicholls, 2005).

But the process of regionalisation goes beyond the bare political process of decentralisation or regionalisation. Indeed, it also refers to the increasing cooperation between the regions, often on a trans-national basis. This horizontal type of coordination is targeting a better economic integration of the territories, which could be linked to the 'functional synergies' addressed in the ESDP (Jönsson *et al.*, 2000). This first type of cross-border cooperation was the creation of the Euregio, a Dutch-German initiative, and now the number of trans-border cooperation has increased dramatically in the latest 25 years, counting with more than 70 Euro-Regions (Perkmann, 2003). This type of initiatives has enabled a better functional integration of the regions and helped the sub-national authorities to foster a more pro-active approach for the development of the territory. Such incentives for cooperation beyond the bare administrative limits exist also at the local level. Indeed, some countries have enabled such inter-municipal co-operations. Such partnerships enable the municipalities to express a common vision for their territory. Those territories are often culturally, economically and functionally connected, and thus forming a coherent territory for efficient policy-making. However, the extent of cooperation is often limited to a restricted number of policy sectors, such as environment or transport.

In the 29 countries under scrutiny in this paper, there are large differences as regards the use of sectoral or territorial approach to policy-making. The sectoral approach is commonly used at the EU and national levels. This approach was historically implemented in order to 'tackle a specific sectoral issue' (Discussion paper, 2004). The recognition of territorial specificities throughout Europe has put the emphasis on the need for a more tailor-made approach. As regards this theme, the ESPON 2.3.2 project gives us an interesting analysis of the main component of the couple sectoral/territorial aspects of governance: degree and forms of coordination of sectoral policies, use of policy packages, use of territorial plans…

The ESPON 2.3.2 concludes that several EU countries have sectoral policies or currently elaborate such policies. However, there are relatively few examples of mechanisms or processes to integrate sectoral policies and examine the spatial implications, whether at the conception or implementation phases. The problem of non-coordination of sectoral policies has been emphasised in some recent studies (Robert, 2001), as different sectoral policies can have contrary spatial impacts. The use of policy packages as a mechanism of integration of sectoral policies is one of the solutions found in some EU countries in order to

minimize those contrary effects (ESPON 2.3.2). Cooperation between agencies, departments and authorities also plays a considerable role in the setting up of an environment favouring sectoral coordination. It seems that most of the former EU15 countries have developed mechanisms for inter-sectoral coordination (ESPON 2.3.2).

Finally, the need for more tailor-made solutions, especially as regards spatial planning policies, can be perceived via the use of territorial plans in the different countries studied. Those plans, whether they are legally binding or not, enable to create a strategic vision for the development of the territory. The ESPON 2.3.2 project has given an overview of the range of such plans at different scale of territories, from national to municipal. Those plans can be perceived as the framework enabling to coordinate actors and policies for the purpose of territorial development.

6.1.2 Existing relevant EU policies

The way EU policies are conceived and implemented has been thoroughly debated in the latest years, one of the most interesting outcomes being the 'White paper on European Governance'. As regards EU policies and the issues of territorial governance, the discussion can be divided in two main parts: first of all, an overview of the nature of the EU policies themselves is needed; then a closer look at the EU Regional Policy will give us a better hint on the role of the policy in the context of regional and local development.

EU policies can have various impacts in the different member states. This feature is mainly due to the various national patterns of policy-making, which have different traditions in involving State/Public actors and Societal actors in the process (Schmidt, 2005). Four such categories can be identified: *corporatist* (Germany), *clientelist* (Italy), *statist* (UK, France) and *pluralist* (Schmidt, 2005). The EU style of policy-making, often described as pluralist, can thus lead to either disruption or continuity with the national style of policy-making (Schmidt, 2005). Moreover, the willingness (or reluctance) of the countries to adapt to EU policy-making is also a important variable. However, the impacts that EU policies can have on the national systems is also very dependent on the policy sector itself, as some of them have traditionally different ways of including the public and societal actors in the policy process.

In the EU policy-making context, there is no policy that is directly dealing with the issues of territorial governance. In fact, it is the whole nature of the EU policies that can give us a better idea on the manner the different issues are dealt with, at which level of authority, between which actors, at which scale… EU policies have been designed from the beginning as sectoral policies, reflecting much the national way of policy-making. The array of policy sectors is broad, the Common Agriculture Policy and the Transport Policy belonging to the most emblematic ones. The purpose was to draw a strategic plan over the European territory in order to improve the situation on the selected issue. This sectoral policy-making has had some good results, but the debate is currently growing on the need of better integration and coordination of sectoral policies between them, using a multi-sectoral approach. This issue is particularly highlighted when dealing with the environment, which needs to be closely coordinated with transport and energy policies in order to be more efficient and prevent opposite impacts to occur. Studies on the cost of non-coordination raised the attention on this need for a renewed approach (Robert, 2001). During the informal meeting in November 2004, it was agreed by the Member-States to put the emphasis on a multi-sectoral approach to policy-making, taking into account the diversity of resources and the particular needs of each territory (Discussion paper, 2004).

Although most of the EU sectoral policies have territorial impacts, only the Regional Policy can be considered as a territorial policy (Robert, 2001). The policy was first designed in order to reduce the disparities between the different regions in the EU. The main purpose is

to develop the tangible (physical infrastructure, urban regeneration…) and intangible (business development, human resources…) structures of the territories by taking into account their geographical and socio-economic pre-conditions and specificities. This policy has fostered projects aiming at a better cohesion of the European territory by targeting the territories and their specific needs, one of the main levers being the Structural and Cohesion Funds. The ESPON 2.2.1 project has shown that those funds have had contrasted results, as their effects are often difficult to distinguish from other policies'. One of the main concerns is the lack of coordination between the EU and the national regional policies, which can have different priorities and thus mixed effects. However, it has been shown that the EU Regional Policy has had a strong impact in improving the governance system in the targeted regions, by fostering innovative and tailor-made types of governance (Bache, 1998). Indeed, the introduction of partnership as a main principle is often considered as one of the main improvements realised by the EU regional policy (Bache, 1998). Partnership is intending to improve the participation of the stakeholders in the policy-making process. Public-Private Partnerships are for instance increasingly used at the regional or local level in order to build the widest coalition of interests possible (public authorities, private actors, NGOs), the aim being that the broader the coalition the better the 'common interest' is defined. In fact, the intention is to have a more decentralised and collective approach to regional policy (Bachtler and Turok, 1997), by shifting from the more directive and hierarchical approach by the national governments. The EU Regional Policy has had strong impact on the modernisation of the institutional structures in some countries (Ireland for example), by creating a regional layer of authority that did not existed before. Although its direct impacts are difficult to assess (Bachtler and Turok, 1997; ESPON 232), it has had some effects on the governance systems at the sub-national levels by developing horizontal (between regions or municipalities, and involving other actors and stakeholders) and vertical (with higher and lower layers of authority) coordination when dealing with policy-making and implementation.

The Open Method of Coordination (OMC) has been developed as a new tool improving the policy-making process in some selected sectoral policies, such as, for instance, European Employment Strategy, social inclusion or education (Zeitlin, 2002). However, the OMC is not an already-made package, but it should be seen as a framework for co-operation, and is thus taking different forms in the different policy sectors (Radaelli, 2003). The OMC is based around the exchange of 'best practice' as well as mutual feedbacks, trans-national comparison and policy adjustment of the policies of the different member states (Zeitlin, 2002). Participation of the widest possible actors is a fundamental feature in the process of the OMC (Radaelli, 2003). However, the evaluation of the OMC as a policy-making process has raised some important bias. First of all, if actors from different levels were often involved, they were seldom reaching out to others than the traditional types of actors (Unions…) (Zeitlin, 2002). Then, the involvement of regional or local actors was somehow limited (Radaelli, 2003) and came at a later stage in the process, mostly the implementation one, and they were therefore seldom involved in the conception or monitoring phases (Zeitlin, 2002), mainly centralised at the national level.

To conclude, the challenges for the EU policies can be considered as twofold. First of all, the cohesion of sectoral policies should be emphasised in order to optimize the EU financial resources and to minimize the possible opposite impacts. On the other hand, the EU Regional Policy enables to give a more territorial dimension to the EU policies, that is to say targeted to the specific local needs, and to deal with the regional governance issues.

6.1.3 Most important driving forces

The review of the past and current trends concerning territorial governance has led us to identify its most important driving forces.

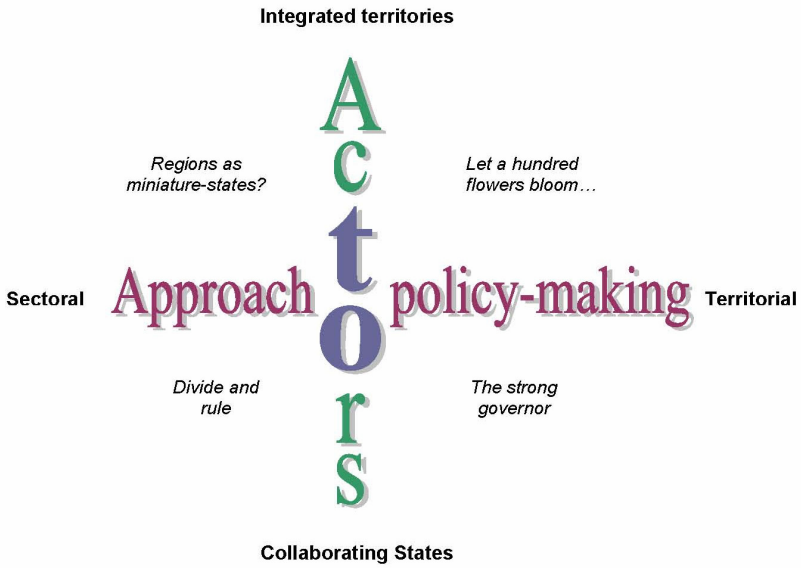
- ✓ New roles for supra- and sub-national levels in the policy-making process
- ✓ Partnership as a 'new deal' in governance, involving public, private and NGOs stakeholders
- ✓ New tools for governance (OMC) intending to make the coordination of sectoral policies between the member states more efficient
- ✓ Need for policy-making based on territories instead of sectors in order to optimize the territorial impacts of the policies
- ✓ Importance of the EU Regional Policy in developing new tools for governance for the regional and local levels
- ✓ Political and functional spillover effects, especially to regional level

It is therefore possible to regroup those different driving forces in two main categories.

First of all, territorial governance is dependent on the **actors** that are involved, and especially the way they collaborate. With actors, it is intended the array and degree of involvement of the actors, as well as their possibilities to influence (to a more or lesser degree) the policy-making process.

Second, the issues of territorial governance are also largely influenced by the **policy approach** itself. As identified in the previous part, this focus is mainly twofold: sectoral or territorial.

6.1.4 Identification of the scenarios hypotheses



The synthesis of the analysis on the main driving forces in the field of governance inside the EU has lead to their grouping into two categories: the actors involved in the policy-making process, including their ability to influence the process, and the approach to policy-making chosen. Those two categories are therefore defining the two main axes upon which our scenarios will be built. As shown in the diagram here above, the two possible directions for the development of each axis define a quadrant with four possible scenarios.

Actors axis:

- ✓ *Integrated territories*: the actors involved in the decision-making process are spread over different levels (supra-national, national, Subnational). Even if not evenly shared, each actor has a real ability to influence the decision-making process, whether at the conception or the implementation phase.
- ✓ *Collaborating States*: the main actors of the decision-making process are situated at the national level (national governments, agencies). The State is mobilizing the other actors in the decision-making process, but with little degree of influence on it. Subnational levels are mainly involved at the implementation stage.

Approach to policy-making axis:

- ✓ *Sectoral*: the use of sectoral policies is still widely used in the policy-making process in order to 'tackle' some specific issues of high European interests.
- ✓ *Territorial*: the territories are the focus of the policy-making process. The main goal is to optimize the effects of the policy sectors on each territory by using a tailor-made approach.

In order to propose two distinct pictures of territorial governance in Europe, two scenarios will be further developed: *Let a hundred flowers bloom…* (*Integrated territories* + *Territorial approach*) and *Divide and Rule* (*Collaborating States* + *Sectoral approach*).

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6.2 Thematic prospective scenarios

6.2.1 Scenario 1: Let a hundred flowers bloom…

6.2.1.1 Scenario hypothesis

The first hypothesis in this scenario relates to the Actors' category. The notion of multi-level governance, which was backed by the member states, emphasises the EU as integrated and collaborating territories. Actors at different levels (supranational, national, subnational) as well as from different 'niches' (public, private, NGOs) are participating actively to the policy-making process. Moreover, the shift in focus from sectoral to territorial policy-making is acknowledging that the great diversity of territorial preconditions and potentials inside the union implies specific and more tailor-made approaches.

6.2.1.2 Scenario process

After 2005, the need for new ways of dealing with policies was getting stronger in the EU. On the actors' side, and in line with the recommendations made in the *White paper on governance*, there has been a widening of the array of authority levels represented in the policy-making process, reaching out to supranational and subnational (regions, municipalities) actors. This move towards multi-level governance gave a new impulse to the legitimacy of the decision-making process, which was felt as too technocratic. The responsibility and accountability within the process was shared across the different levels involved, even if not always equally. In fact, the stronger involvement of the supra and subnational levels was the result of both a conscious and unconscious choice of the member states. On the one hand, the states clearly realised that, in order to implement the huge challenge that the Gothenburg and Lisbon strategies represent, they would need the strongest coalition of actors possible, and also by this way, limiting their direct responsibility in case of failure. But on the other hand, it was also the result from a 'snowball effect', the integration of supra- and subnational actors at some specific moment of the policy-making process, mainly the implementation phase, led to an even greater integration, and by this way benefiting from their deep knowledge of local issues. The involvement of other actors was thus enlarged to the conception and monitoring phases, and not anymore restricted to the implementation one. The role of the state was shifting to the one of a guarantor of the institutional framework within which collaboration takes place.

The multi-level governance approach, first initiated in some parts of the EU around 2000, thus became a guiding principle for policy-making though the 'sectoralisation' of policy remained. The different territorial entities (local, regional, national and EU) agreed initially to coordinate their actions and policies on a selected panel of sectoral policies, subsequently extending it across all sectoral policies. The clearer definition of each level's responsibilities engendered by these new arrangements provided a major fillip to the process more generally having results far beyond original expectations.

The implementation of multi-level governance was especially successful in the Central and Eastern European Countries (CEEC). There, the young institutional framework was more flexible to the use of new innovative tools for governance than in the former EU15 countries. Moreover, the remembrance of the former authoritarian communist regimes

pushed towards a weaker central government and a greater involvement of the other subnational authorities. Finally, CEEC were keener to cooperate with EU institutions in order to quickly catch up with the older member states.

The involvement of subnational actors, as described here above, has enhanced the trend towards a greater delegation of powers to the constitutional regions, and local authorities, as started in some countries in the 1980s. The two main characteristics of this decentralisation occurred in two successive phases. First of all, there was a widening of the institutional leverages delegated to the regions, shaping a renewed institutional framework. Second, the decentralisation of the financial management systems by 2015 gave the regions the means to be fully operational partners. Moreover, this two-step process fostered the development of an innovative regional style of governance. The partnership method, introduced within the framework of the EU Regional Policy during the 1990s, was commonly used as a governance tool by the regions by 2015. As stated before, the lack of financial means in the beginning of the decentralisation process pushed the constitutional regions to involve other regional actors, and thus pooling their resources. The most widespread type of partnership was the Public-Private Partnership (PPP). By involving private actors as well as other relevant stakeholders (NGOs, associations…), the public authorities had the ability to better define their actions and to inject innovative solutions for better policy-making. Moreover, they could rely on the financial and human resources of the private sector as complementary to theirs. Horizontal co-operation (Region-Region, Municipality-Municipality) inside the member states improved the coherence and efficiency of the policies with strong territorial impacts.

Thanks to the use of Public-Private Partnership, the provision of public services was substantially improved and was both more efficient and more financially sustainable. However, this renewed flexibility in public services was realised at the expense of equality. Indeed, the most remote and sparsely populated areas were barely reached out. Overall, the greater involvement of private actors in the policy-making process provided with greater flexibility and diversity in the offer of basic services to persons.

The greater integration of the European territories was also largely due to the intensification of cross-border relations between subnational levels. The stronger political role played by the Regions, as well as the territorial approach to policy-making, fostered trans-national regional co-operation throughout Europe. Having both the ability to draw up comprehensive regional plans and the means to implement them gave the subnational levels (Regions, local authorities) the opportunity to collaborate with other subnational levels, both within and across national borders. Indeed, in some areas, it quickly became obvious that the territorial approach would not be optimal unless it was drawn up on a cross-border basis. The success of co-operation programmes such as Interreg was praised and paved the way for deeper policy co-operation between territories, mainly through increased EU Fundings after 2010, and became a strong driving force towards integrated territories in Europe. Significant results were thus made in terms of cross-border co-operation, especially by the shaping of functional cross-border regions, with common labour markets and provision of public services). The area lying at the border of the former EU15 and CEEC became highly dynamic in the field of cross-border co-operation. The intensification of exchanges fostered the development of large functionally integrated cross-border areas, backed by adjusted labour market policies in those territories.

In the continuation of the work that came after the publication of the White Paper on European Governance, the debate on the territorial approach to policy-making increased in both volume and importance, involving the different layers of government in Europe: i.e. not only the EU and the member-states, but also the regions and municipalities were becoming increasingly interested in the policy-making process, essentially based on the specificity of each territory. The process of actually implementing a territorial system of governance was of course to take a considerable amount of time however, as the different actors did not always agree on how to actually implement this strategy on the ground, but it

became widely spread over the EU territory after 2015.

The use of the Open Method of Coordination (OMC) to territorial development issues, instead of the bare sectoral ones, was one of the responses suggested and enabled a renewed sharing of 'best practice'. This led to some adjustments in policies on a cross-border basis, in order to foster the functional integration of the territories, instead of adjusting the whole national systems, which would have taken much more time due to higher degree of bureaucratic inertia. This strategy was particularly successful as regards labour markets policies, combining mainly employment and education policies. The 'tailor-made' adjustments were designed to improve the cross-border spillovers. The use of OMC was therefore an important pillar in the design of tailor-made territorial policies. It was one of the first steps from a sectoral to a territorial approach to policy-making.

In the field of policies, this transition from sectoral to territorial approach led, by 2015, to the development of intermediary policy packages. It was evident to all that an integrated strategy was needed. Thus, the first step here was confirmed and implemented in the framework not of sectoral policies but of thematic strategies. For instance, the transport, energy, agriculture and environment sectors were grouped into a wider 'ecology' theme; Public health, education and training, civil protection and social affairs were grouped under a 'society' theme; Information society, industry, commerce and competition were grouped under an 'economy' theme. The sectoral regrouping process was difficult, and often subject to controversy, but ultimately it was seen as a further important step towards achieving a workable form of territorial governance.

By 2030, the strategy of multi-level governance associated with a territorial approach to policy-making was felt to be successful in enabling a more sustainable path for the development of the various 'territorial capital' that existed throughout Europe. Moreover, cross-border co-operation, which was essentially a top-down process just after 2005, became a natural way for territories to approach the complexity of policy-making and became a widespread tool for territorial management at the subnational levels, achieved on a federative basis.

6.2.1.3 Territorial impacts of the scenario

At the *macro* level, functional integration of cross-border regions has enabled polycentric development, as displayed by the rising number of Mega-Regions and Global Economic Integration Zones increased, moderately in the Pentagon, but significantly in the more peripheral areas of the European territory. The Mega-Regions are composed of a network of regional capitals. Europe has thus become more polycentric in its structure and more balanced as regards economic development. The networks of infrastructure between the Mega-Regions have been considerably improved, boosting the accessibility of regional capitals from a wider European perspective. The overall competitiveness of the EU has increased, as the regions are more able to exploit their comparative advantage and to adapt to new economic challenges. Competition between Mega-Regions and Global Economic Integration Zones is greater. However, the differences in terms of GDP per capita between the leading regions and the lagging ones is greater, which threatens the territorial cohesion of the European territory.

At the *meso* level, trans-national co-operation between regions has also been fostered. In those co-operation areas, the Regions have developed a joint territorial approach to the development of the area. This was made possible by the emphasis on new tools for territorial governance in most of the member-states. New infrastructure networks have been built inside these areas, making the regional capital cities less reliant on their national capitals for access to other markets. This phenomenon can be particularly witnessed when

looking at the extent of the development of Polycentric Integrated Areas (PIA). The development of strong physical networks does however raise questions over their impact on the environment, as well as over their potential side effects on the preservation of the natural and cultural landscape.

At the *micro* level, the settlement pattern initially concentrated around the most important of medium-sized towns. The main effect was thus urban sprawl around these cities and the extension the commuting distances. The regions can thus be seen to be developing in a monocentric fashion, with a strong regional capital, while rural areas are thus becoming increasingly seen as basically recreational, given the increasing need for leisure activities in the main regional cities. In the territorial governance approach developed by most Regions, the rural areas develop their comparative advantage by specialising in agriculture, tourism and leisure activities.

In this scenario the most favoured regions are:

- ✓ Near-border and nationally peripheral regions as they are thoroughly exploiting the advantages of Cross-border co-operation
- ✓ Regions that have been devolved key competences, such as spatial planning and regional development, enabling them to create complete and integrated regional plans
- ✓ Regional capitals as the newly devolved political responsibilities have increased their importance on the national scale, as well as their legitimacy on their regional hinterland.

6.2.1.4 Final image of the territory

In this scenario, the final image of the European territory could be seen as reflecting the idea of 'the bunch of grapes.' The emphasis on territorial governance, coupled with a stronger political role for the regions, fostered a Europe made up of 'islands' of co-operation, i.e. the Mega-Regions, shaping a more balanced overall European territory. Another interesting feature in this final image of the European territory is the growing disparities because strong and weak regions. Indeed, strong regions have a greater capability for co-operation, especially between themselves, but also with their directly neighbouring regions, and thus create more synergies by being part of wider transnational cooperation networks, while weaker regions are partly left out of those networks.

6.2.2 Scenario 2: Divide and Rule

6.2.2.1 Scenario hypothesis

In this scenario, the actors' side is mainly dominated by the national level of authority, both governments and agencies. Instead of delegating powers to the subnational actors, as in scenario 1, the states are mobilizing them in the later stages of the policy-making process, restricting their ability to influence the formation of policies, and binding them to a barely advisory role. The focus on sectoral policies as a main leverage for implementing policies is also reinforced. The context of strong international competition forces the member states to take drastic measures in order to tackle some specific issues (improvement of transport networks, energy crisis…).

6.2.2.2 Scenario process

After 2005, the member states decided that if the Lisbon (competitiveness) and Gothenburg (sustainable development) strategies were to me met, they would have to act as strong and efficient leaders for their respective countries. The style of governance for the EU was then moving towards a forum of collaborating countries than a deeply policy integrated territories. The member states as thus reinforcing their position as the central actor in the policy-making process, dedicated to the development of the domestic agenda. The mobilisation of subnational actors in the policy-making process has improved, but their ability to influence it is limited, and their role restricted to the one of advisors.

The fear of a spreading of powers between a multitude of actors, which would have resulted in a worsening of the public policies' efficiency, was one of the defining driving force for the re-centralisation to the national level, whether governments or sectoral agencies. Moreover, too many actors would have confused the citizens on who is responsible for what, reducing the democratic accountability of the policy-making process. The retention of financial means at the national level emphasized this limited role. However, the member states advocates the need for stronger co-operation with the other domestic public authorities (Constitutional regions, municipalities), but in a contractual form, following the pattern of the French '*Contrat Etat-Region*', less flexible than other forms of management, like partnership for instance.

In order to deflect the lack of the financial means, the local authorities focussed on attracting businesses on their territory to increase their fiscal revenues. The fierce competition led to enhanced larger economic disparities at the local level between 'winners' and losers', due to the high pace of business relocation. The most attractive municipalities were those situated along the major road networks, by this way having a better accessibility to regional and national markets. The main consequences are, on the 'winners' side, a higher pressure on the real estate and land-use regulations (often softened in order to attract firms more easily), and, on the 'losers' side, a higher number of disused industrial areas to be decommissioned as well as a rise in local unemployment rate. The rigidity of the national Employment and Education policies, and despite the use of the OMC for these policies, prevented from having a tailor-made response to those local problems. Disparities at the local level were therefore higher after 2015 than they were in 2005.

For some of the societal actors, such as banking interests or major sectoral trade unions, the refocus on the national level was seen as a positive development and an opportunity to

regain importance on the domestic agenda. Indeed, they felt that the state was the only actor that had the real potential to influence the policy-making process on an international scale and to lobby for the domestic interests. Consequently, by 2015, many of those societal actors had closed their offices in Brussels.

After the overall shrinking of the EU budget in 2005, the impacts of EU policies were substantially reduced throughout the European territory. The most affected policy was the Regional Policy, the only policy that was fostering approach to policy-making. The increase in the number of recipient regions after the 2004 enlargement, widely spreading out the funds in far too many regions, was also perceived as a limiting factor for the efficiency of the policy. The further enlargements after 2015 emphasized this trend. Trans-national programmes, such as Interreg, despite some positive outcomes, have not been reconducted after 2013, which limited the exchange of 'best practice' on a cross-border basis.

The emphasis on sectoral policies was sustained. The use of the Open Method of Coordination was only developed on selected sectors with no strategic domestic specificity for the member states. Moreover, the OMC is barely reaching out to public actors at the subnational levels, serving more as a way for the national authorities of controlling the extent and pace of the policy adjustments. The growing emphasis on sectoral policies increased the negative spatial side effects, as the lack of coordination prevented from synergizing the spatial impacts of the various sectoral policies. For instance, if the strong focus on the development of new road infrastructure has enabled to make peripheral areas more accessible, it has been at the expense of some local communities, and with, often non-reversible, environmental impacts.

6.2.2.3 Territorial impacts of the scenario

At the *macro* level, the emphasis on the role of the national governments as lead actors in the policy-making process has fostered the expansion of the national capital cities, which continued to act as the main gateways for the rest of the country. The economic position of the capital cities of the peripheral countries of Europe however has also been strengthened, but overall these areas continue to be faced with serious accessibility problems. The most remote areas are still poorly connected to the wider European networks while their economic development remains effectively decoupled from that of the capital cities. The strong focus on the transport policy as the most important sectoral policy has also improved the position of the capital cities in the CEE Countries, as the road network was mainly expanded eastward..

At the *meso* level, the capital regions remain at the core of the economic system as well as of the infrastructure networks. The transport network is star-shaped and centred on the capital region. The other larger national cities have good connections to the capital, but poor connections with each other. The urban system within countries is typically hierarchical. The regions along the national corridors are favoured. Regional divides are also getting wider at the *meso* level. The rigidity of national polices prevents the development of economically strong Mega-Regions in cross-border regions outside the Pentagon.

At the *micro* level, the strong competition between small and medium-sized cities to attract businesses prevented the creation of fully operative city-networks. Moreover, it seems that the development of the main cities has to some extent been decoupled from the development of their hinterlands, which results in a strong urban-rural divide at the micro scale.

In this scenario, the most favoured regions are:

- ✓ Capital cities as the State is still the cornerstone of the policy-making system
- ✓ Cities and regions along the main European and national axes of transport, as the focus on sectoral approach has given new emphasis to the development of transport corridors.
- ✓ Municipalities in countries with a strong municipal level, enabling them to compete

As such, this scenario is reinforcing the predominant position of the national capitals of the Pentagone, because it is strengthening their central position.

6.2.2.4 Final image of the territory

The European territory is poorly integrated. Strong connections and exchanges exist between the capital cities, particularly in the European Pentagon, while at the local level co-operation between small and medium sized municipalities has had some success in tackling difficult sectoral issues. Nevertheless, in terms of these networks, an obvious lack of integration to the closest regional FUAs remains an issue to be tackled. Moreover, disparities between the development of the capital cities and the more peripheral areas are increasing, while the emphasis remains on significant infrastructural investment, threatening the environmental equilibrium of the regions crossed by the transport corridors. Finally, a major concern in this final image is the inconsistencies and discrepancies that are resulting from the lack of coordination of the different sectoral policies, as for instance, the lack of synergies, the sub-optimal allocation of resources as well as the negative impacts caused by the counteracting public sectoral policies. This general lack of coordination greatly contributes to a weakened territorial cohesion of Europe.

7. Thematic scenario 'Enlargement'

Christopher J. Smith and Minas Angelidis

Key words: 'deepening vs. widening' debate, enlargement, integration, globalisation, economic impacts, peace and stability.

'Whatever its structural and policy consequences, enlargement constitutes the single greatest contribution the EU can make to European, even global stability. As I have said, I see the projection of stability as the EU's central objective of Common Foreign and Security Policy (CFSP). The enlargement of the EU itself is the greatest example of that policy' (EU Commissioner Chris Patten, *Financial Times,* 2003).

7.1 Scenario Baseline

7.1.1 Current situation and trends

Enlargement is a central part of the integration process. The basic arguments for further enlargement each implicitly have at their core an integrative mechanism. The core economic argument relates to the expansion of the single market to include new states, and through both the abolition of tariffs (trade induced impact) and what Pelkmans (2002) terms 'regime change' including politico-administrative change and market liberalisation, the economy of the whole enlarged EU benefits. Similarly, the core political argument for enlargement relates to the need to spread peace and political (and thus by implication economic) stability across the continent of Europe in the hope of avoiding the spread of political instability and conflict. The problem is that the benefits of enlargement are not evenly spread in spatial terms, nor do they necessarily outweigh the immediate (perceived at least) costs to any single individual. As such then, enlargement is a fundamentally *political* issue, where perception often trumps rationality.

Though these ideas have been implicit from the outset they have been impacted over time by the prevailing nature of the global system. During the Cold War, European Integration was necessarily constrained to the 'small Europe' model, but with the end of communism in Eastern Europe and the advent of globalisation, the possibilities for, and problems constraining further integration changed dramatically.

Two basic views on European Integration and in particular the drive for *political union* have existed side by side since its inception (for simplicity's sake they are usually reduced to the labels, *federalist* and *intergovernmentalist,* and represent the original six member 'core' of Europe on the one hand and the British and the Scandinavians on the other*),* though this is of course to massively oversimplify the issue. In the initial ideological struggle in the 1950s the 'federalist' core group triumphed, though by the 1980s, with British entry confirmed and after a decade of European economic stagnation, the alternative 'intergovernmental' view began to gain in importance.

The global changes of the 1990s however fundamentally challenged each approach (see ESPON 3.4.1). Although the Cold War's end made the prospect of a Europe 'whole and free' more plausible (i.e. the extension of the single market and the zone of stability across the whole of continental Europe), it also (by removing the 'existential' threat of nuclear war, which had necessitated US political and military dominance in the US-European strategic

partnership) removed the geo-political barriers to 'ever closer union.' At the same time however the impact of increasing globalisation further impacted on the possible roots to implementation for each scheme.

Between 1973 and 1995, enlargement was basically an uncontested issue. As such, bouts of integration and enlargement went 'hand in hand' as for instance Mediterranean accession was coupled with the Single European Act and the Internal Market, while 'EFTA' entry was coupled with the Maastricht process and the 2004 enlargement with the Amsterdam and Nice Treaties leading up to the European Constitution 'process'. On each occasion, the Commission in particular sought to ensure that a balance was maintained between 'deepening and widening', this issue however became increasingly acute as the Union expanded in size over time but essentially retained a politico-administrative structure designed for *six* not *twenty five plus* members.

The current difficulties of the Union, highlighted in particular by the French and Dutch 'no' votes over the EU constitution (where a negative reaction to globalisation and opposition to further enlargement were paramount), thus draws together a number of long term themes that have now coalesced into the basis for a new 'grand debate' on the future of Europe. These themes can be identified as follows:

- The need to deal with the problem of creating an institutional solution that works in an environment of 25+ members
- The need to agree on a shared goal for what kind of Europe the Member States now want
- The need to implement the 'Lisbon Agenda' goals within the context of ongoing globalisation and a wider strategy encouraging European economic growth
- The need to ensure greater cohesion across the European territory and to ensure also that Europe's new 'neighbours' are not left behind thus increasing political tensions through failing to deal with the widening of economic disparity levels between 'insiders' and 'outsiders'
- The need to deal with the Union's chronic financing issue within the context of a new budgetary deal for the next financial perspective

As noted above, while after UK entry in 1973, enlargement was traditionally 'uncontested' it is now again at the centre of this emerging debate over the future content and direction of the Union as a whole, as the issue has been enveloped by broader questions and 'politicised' as a socio-cultural 'issue' in some Member States (in particular over the issue of Turkish accession).

Concentrating specifically on enlargement, the middle course in this 'deepening versus widening' debate – usually represented by the Commission, but also by most Member States – was perhaps best represented by former Commission President Romano Prodi (2004), who stressed the need '*not* to choose but to convince', while the extremes have been represented (for the purposes of this paper) by drawing out this 'deepening and widening' dichotomy, and thus posing possible futures based on a concentration on one at the expense of the other. This is not to say that either of the extremes is particularly likely to occur, but if this approach were not used, any alternative scenario would simply be a minor adjustment from the trend, and thus would lack pedagogic value as the 'drivers' of integration are not 'mechanical' and are thus heavily mediated by ongoing political events at the global, EU and national levels.

7.1.2 Existing relevant EU policies

As a process, enlargement has changed quite substantially in recent years both in terms of the size of the *acquis* to be adopted and in respect of the way in which the whole process develops. As such, the 2004 enlargement marked a significant departure from previous experience in this regard, with accession – within the wider context of 'conditionality' (i.e. the so called 'Copenhagen Criteria') – now representing a new Member States' basic *achievement* of the entry conditions rather than its mere acceptance of such conditions *to be met in the future.* This change in approach to deal with the influx of new members, predominantly from Eastern Europe was however buttressed by new mechanisms such as pre-accession aid, based on previous PHARE and EUROPE agreements (Maresceau, 2003).

The *raison d'être* for enlargement is the need to engender political and economic stability across the whole European space while also boosting European economies. This occurs in two separate but interconnected 'impulses'. The first takes place in the pre-accession period as potential members go through a process of market liberalisation and politico-administrative reform, with the pre-accession strategy and pre-accession aids smoothing the course (see ESPON 2.2.2). The second phase occurs after accession within the context of what we shall call the 'catch-up' strategy, where an attempt is made to deal with the economic disparity between new and established Member States.

'Catch up' strategies generally entail new Member State access to the Union's Structural and Cohesion funds, though policy areas such as transport, agriculture, cross-border co-operation (i.e. within the context of INTERREG) and border control obviously also have a specific territorial impact on the new Member States. Enlargement thus necessarily has a budgetary impact, though the basic outlines to this were covered within the context of the Commission's Agenda 2000 document (1997), as well as, given the list of policy issues above, a sectoral policy impact also. The issue of the net 'costs' of enlargement should not however be overplayed, while issues such as FDI displacement and migration are difficult to quantify *ceteris paribus*.

For instance, the protectionist principle of *host country control,* which dictates that immigrant workers from Member State *X* must be paid and otherwise treated as indigenous workers from the host Member State *A* at a stroke pre-empts any possibility of genuine cross-border labour mobility where citizens from the new Member States could exercise their market advantage (i.e. the ability to accept lower wages). This does not necessarily however impact on illegal immigration flows. Similarly, the question of potential FDI 'displacement' assumes a 'zero sum' game in this sector, though FDI inputs are likely to rise for a time after accession in the new Member States and then stabilise as new markets are found elsewhere.

Note should also be made here of the Union's emerging 'Neighbourhood Policy' designed to deal with those states who currently do not have an 'entry perspective' in respect of future EU membership. Although there is a desire on the part of some to maintain a strict division between pre-accession policy and the NP, reflecting a wider desire perhaps to limit enlargement, in reality the policy mechanisms (if not the specific goals) are the same, and in the long run if countries such as Moldova and the Ukraine fulfil the Copenhagen criteria in full it will be very difficult to exclude them from membership.

With the emerging new 'grand debate' over the future content and direction of the Union now encompassing the reform of the CAP and potentially also the re-nationalisation of Cohesion Policy (though the Commission has now come up with its own proposals to forestall this), as well as an eventual refocusing of the entire EU budget, it is currently rather difficult to predict the political ramifications that will occur in these areas, though the Union's current inability to agree on the new financial perspective for the 2006-17 period is

causing some new Member States some distress. Moreover, this must also be put in the context of the re-launching of the overarching goals of the Lisbon/Gothenburg programme for increased competitiveness and sustainable development.

In the context of globalisation and the current economic recession in Europe (the Euro-zone currently has 20 million people registered as 'unemployed'), 'catch up' is not just a social necessity to decrease disparities between new and old Member States, but actually vital as a 'growth mechanism' for the whole of the enlarged EU. The problem here is however that the decline of west European welfare states and the removal of the 'safety net' during the period of market liberalisation and political restructuring in Eastern Europe has seen *regional* disparities (i.e. disparities *within* states) across the European space markedly increase, and it will thus be difficult to encourage growth at the European level while also promoting cohesion at the regional level. Moreover, historical analysis suggests (i.e. The Iberian countries in the 1980s-90s and Scandinavia at the turn of the twentieth century, that increasing regional disparities is an inevitable side-effect of economic 'catch-up' at the national level). Further discussion of this issue is fruitfully undertaken within the context of notions of polycentricity (see ESPON 1.1.1), and more specifically in a policy context in ESPON 2.2.1.

7.1.3 Most important driving forces

The review of past and current trends identified four basic driving forces for enlargement these can be outlined as follows.

7.1.3.1 Economic Success

It is undeniable that the EC/EU has been a resounding economic success. Whether or not this success can be attributed directly to the Customs Union and the Cohesion policies, or more generally to the simple fact of the 'stability' it has brought to Europe after WW2 is however not really the issue, as undoubtedly both played their part. Nevertheless, the economic success factor continues to act as a powerful magnet, ensuring that those on the periphery of the Union are eventually 'pulled into its orbit'. Below the rarefied level of 'high politics' however it is undoubtedly the case that it was the reduction and elimination of tariff and non-tariff barriers to trade (i.e. the envisaged creation of a 'single market') that originally, in practice, drove the integration process. This of course had a significant number of 'knock-on' spatial effects within the context of enlargement, though the basic motor of 'trade diffusion' has now been replaced by broader 'regime change' factors in the new Member States.

The pace of this process is of course quickened when the attractiveness of the integration project – or the expected benefits of membership – precipitate indigenous 'push' dynamics from within the group of countries currently outside the Union. This was perhaps most evident with the Mediterranean enlargements of the 1980s, though the realities of the 'classical method' of enlargement generally ensured that current members' interests were protected at the expense of those of prospective entrants. As such, entry on the basis of short-term economic gain has rarely been an important driver of enlargement as the costs of 'adjustment' usually outweigh initial trade based gains. This is particularly evident in terms of the expected 'cost' in GDP terms to the new CEE Member States of implementing the EUs high environmental standards. Note should however also be made of the fact that the power of this particular driving force – in relation to some of the other driving forces – has to some extent been seen to have declined in recent years for a number of reasons, with the nature of globalisation in particular playing an important role here. As such, where previously the focus of economic integration was 'regional' it is now increasingly global. This

significantly impacts on European integration to the extent that the EU itself is no longer viewed as the primary *economic* generator of integration, but rather as its regionally based *political* guarantor. Thus the EUs role in this sense is subtly changing. Moreover, as the major economic 'players' in Europe are almost all now already members, the power of the economic driving force to continue (in a political sense at least) to 'push the borders of the EU outwards' has waned with the decline in the number of economically attractive prospective applicants, while additionally, *full* EU membership itself is no longer seen as a necessary prerequisite to participation in either regional or global economic integration, though it continues to afford prospective members with the most effective route to politico-institutional 'lock-in'.

7.1.3.2 The fear of being 'left behind'

While the economic success driver historically acted as a powerful force 'pulling' the States of Europe into the Union, 'the fear of being left behind' predominantly acts as a 'push' factor on prospective members. Basically, as the EU became increasingly successful, encompassing ever larger swathes of Europe, the costs of non-membership increased exponentially for most countries, but particularly for those rather more fragile non-members who sought not only economic, but also political and *civic* benefits from entry (i.e. politico-institutional 'lock-in'). Moreover, this is, in itself, a rather dynamic process as the actions of ones immediate neighbours can potentially fundamentally affect ones own decision-making processes. We can therefore postulate that this factor perhaps played a role in respect of the various EFTA countries applications to the EU in the early 1990s, where each country undoubtedly sought to avoid being 'left behind' and where it was perceived to be important to get ones feet 'under the table' before the onrush of new applicants. Similarly, the Central and East European countries that were eventually to accede *en masse* in 2004 were each very keen to ensure that they were not 'slow tracked' – a fate that was eventually to befall Rumania and Bulgaria – with all the consequences that such a decision would have for their economies when they finally got down to the 'nitty-gritty' of the accession negotiations, with their neighbours and often direct competitors (in terms of industrial and agricultural production, the need to 'export' labour to gain remittances from the stronger economies of the Union, and in respect of attracting either FDI or 'cohesion' financing) now on 'the inside' and thus able, in part, to 'dictate' the conditions of entry for prospective new members. Thus the practical implementation of the 2004 enlargement framework saw the grouping together of a number of hitherto rather distinct groupings of applicants, namely, the Mediterranean island mini-states, the Baltic States, and the so-called Visegrad States, with Slovenia providing a fourth grouping as it managed to politically detach itself from the rest of the Western Balkan grouping – who were deemed unready for membership given the various continuing 'ethnic' conflicts across the region. Similarly, for this very reason, Croatia has been assiduous in attempting to de-couple itself from Serbia in particular, and the rest of the Western Balkans in general as regards future EU accession.

7.1.3.3 Institutional/Bureaucratic 'Dynamics'

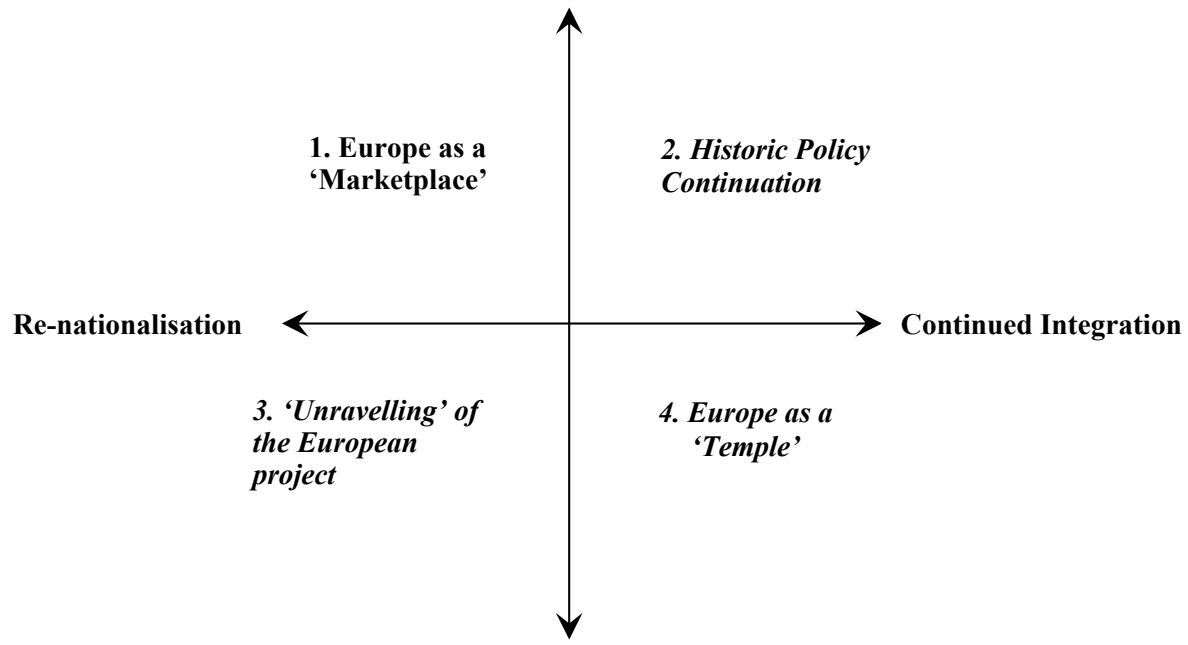
Although the EC/EU has never had to advertise for members, one could postulate that in the past a certain amount of institutional or bureaucratic 'drift' existed at various times in respect of the issue of enlargement, particularly in terms of the wider implications of the intimate relationship between *deepening* and *widening.* As such, one could postulate that, on the one hand, perhaps in order simply to avoid 'bureaucratic sclerosis', and on the other, driven by the desire to maintain the holy shibboleths of integration theory, that the EU institutions themselves, and the Commission in particular, have at certain times sought to cajole the Member States towards opening up the Union to continual expansion. The institutions themselves then have thus acted as a subtle factor prompting evolution in this regard. We should of course stress that this has never been a major driving force in EU enlargement, but it is useful to consider this point nonetheless because it functions to

remind us of the important role played initially by the Commission, and now also by the European Parliament, in the enlargement process, and in particular in respect of the accession procedures. In essence however this is a potential driver only in particular circumstances – such as when profound disagreement exists between the current members over the long-term goals of the Union as was the case between 1981-84 – and thus where the need for enlargement can be used to defray or redistribute the costs of such disagreements to prospective new members, or to reaffirm the status of the 'integration project' more generally. Similarly such an issue surfaced again as Prodi sought to ensure that the Western Balkans were, as a group, promoted from the *antechamber* of the Neighbourhood Policy to be given a full 'entry perspective' into the EU.

7.1.3.4 Political stability/wider 'civic' duty?

Finally, we can see that political factors have also been of fundamental importance in this ongoing enlargement process. Independent of the economic benefits of accession or enlargement (depending on whether one is a candidate or an existing member) there is certainly a strong case to be made for promoting the notion of the political stability that membership invariably brings – although in some cases this may be merely the displacement of a previous area of instability to a position beyond the 'new border' – as an increasingly significant driving force in the enlargement process. Not only does this however relate to the desire for what can now be termed 'soft security insurance' on the part of prospective members, but also to what we may term, the EU's 'wider civic duty' to admit all those that pass the 'entrance exam' essentially laid down by the 'Copenhagen Criteria'. This point is again often couched within the context of the desire for politico-administrative 'lock-in' on the part of the potential new Member States. Moreover, it is also perceived as a dynamic issue, as the failure to 'project' stability is seen as merely an invitation to 'import' instability. As such, this point relates in particular to the broad acknowledgement of the significant changes that have occurred at the global political level since the end of the Cold War, and in particular to the realisation that the process of European integration has a fundamental impact - with the potential to be either good or bad – upon the EUs neighbouring states.

7.1.4 Identification of the Scenario Hypotheses



From the driving forces outlined above it was possible to draw out two axes in respect of the development of the scenarios. The vertical axis corresponds to the 'widening' parameter outlining the binary possibilities of 'continuing enlargement' and 'no further enlargement', while the horizontal axis corresponds to the 'deepening' parameter outlining the potentials of 'continuing integration' and some policy 're-nationalisation'. These choices are designed to circumscribe the limits of policy choice, and as such the field of realistic outcomes is much more likely to be found as a variation of the trend scenario 'historic policy continuation', which for example would include the possibility of some policy re-nationalisation, perhaps in respect of Cohesion Policy, combined with a more nuanced reading of the subsidiarity issue which saw the term defined as action taking place 'at the most appropriate level' as opposed to 'at the lowest level'. This could potentially see further integration in terms of cross-border transport issues (i.e. missing links) (see, Pelkmans 2004, and Sapir 2003).

The two axes define four possible outcomes, with all but scenario three, which postulates an increasing breakdown of the European project (and which is therefore not considered at any length) being a mixture of positive and negative outcomes. As its name suggests, scenario two is in effect the 'baseline' scenario, which is basically expounded in the baseline document. The scenario document thus concentrates on scenarios one and four.

In scenario one - 'Europe as a Marketplace' - the implications of a rapidly widening but increasingly 'shallow' Union are played out, with the impact on growth and convergence, 'catch-up' and regional disparities all addressed. Here significant enlargement activity continues though we can surmise that *political* problems may emerged *at the national level* in respect of issues such as cohesion, where, given the impact of ongoing globalisation on the nature of regional disparities, it may be increasingly less likely that alliances can be maintained providing for fiscal transfers from poor regions in rich countries to rich regions in poor countries.

Similarly, in scenario four, 'Europe as a Temple' the implications of the decision to abruptly end the enlargement process in an attempt to concentrate more fully on deepening, particularly in respect of institutional issues initially, but ultimately also in respect of environmental standards and even tax policy, is drawn out. Here a particular approach to globalisation is adopted that stresses the need for Europe to avoid trying to compete 'at the lowest level', postulating instead the need to generate growth through making the internal market function more effectively.

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7.2 Scenarios

7.2.1 Scenario 1: Europe as a 'marketplace'

7.2.1.1 Scenario Hypothesis

This scenario sees a continuation of national level control of the enlargement agenda with in addition, some measure of policy re-nationalisation in respect of cohesion policy. Questions over Turkish entry would be answered positively though the budgetary issue would remain a thorny one and thus enlargement would be expected to essentially finance itself in the medium term (e.g. the 'win-win' game). In principle, different forms of capitalism could continue to exist under the EU umbrella, though this would necessarily act as a brake on further integration – particularly in areas such as tax policy. It is perhaps more likely in this scenario however that structural economic change – particularly in respect of labour market policy – would spread from East to West, calling into question the European 'social model'. The ultimate role of the Neighbourhood Policy is unlikely to be decided within the timeframe up to 2030. This scenario also postulates that the *marketplace* increasingly becomes more important than the *temple*. The forces of marketisation, individualism, liberalism, and de-centralisation (from the EU-level at least) win out as *intergovernmentalism* prevails over *federalism* in the EU, and the choice is thus made for *widening* over *deepening.* The EU contracts in terms of functions to conform to the liberal ethos of the 'night-watchman' state, providing only for 'soft security' and the overseeing of the proper and unfettered functioning of the market, introducing also, where necessary, a measure of *variable geometry*. The *raison d'être* of the new EU is enshrined as the Lisbon goal of 'competitiveness.' The EU Constitution is eventually ratified to consolidate this vision, while the EFTA/EEA states (Norway, Switzerland, Iceland) as well as Turkey and the Western Balkan states all accede to membership of the Union before 2030. The EU however becomes far less cohesive given the difficulties of integrating so many new and, for the most part, relatively poor members in such a short space of time. The main objective of the European Neighbourhood Policy (ENP) is to promote the establishment of Free Trade Areas in the large neighbourhood zones on the EU external border in the Mediterranean region and in the states of the former Soviet Union. EU Cohesion Policy is gradually effectively nationalised, as it is assumed that the member states themselves can better deal with the question of regional disparities. As a result, the EUs Structural and Cohesion Funds are essentially starved of resources, and thus the pressure of enlargement on the EU budget is lightened considerably.

7.2.1.2 Scenario Process

After much debate, the EU - driven by the more sceptical anti-federal members - decided on the need to focus on widening at the expense of deepening. The major reason being that for the EU to effectively compete with the other global trade zones in North America and East Asia, the primary objective remained the need to *quickly* become the most innovative and competitive economy in the world (i.e. the Lisbon strategy). As such, the fundamental improvement of its economic performance required the further, and indeed substantial, widening of the internal market and its socio-economic disciplines to those territories still outside the EU.

As the power of market forces remained a major driver of enlargement, the internal market and the EMU constituted the institutional context in which such forces were given free reign to operate, with the process of policy and market competition determining to what extent differences between Member States could be maintained with respect to welfare state and other arrangements.

The driving force here was the desire by many of the larger contributors to the EU budget (i.e. Germany, the UK, the Netherlands and Sweden) to ensure that the projected shifts in aid flows in the EU25+ would not entail the need for a 'blank cheque' to be written to the new members, as the size of the Regional Aid budget was predicted to rise by some 50% merely to cope with the new 2004 entrants (2nd Cohesion Report). In addition, the main recipients of such aid in the former EU15 'fell into line' with the tough stance adopted by the major contributors as they themselves were set to lose most of their aid in any case. Indeed, Ireland and Spain were set, in the medium term, to become 'net contributors', with Portugal and Greece retaining only a small amount of aid for their poorest regions. Yet provision was made in the 2007-13 financial perspective for the 'statistical effect' of the 75% barrier to be addressed.

With the entry of Croatia, Bulgaria and Romania in 2007, the Member States continued to give priority to widening at the expense of deepening. Though the EU constitution, in its new vastly amended form, was finally ratified in 2008, the aspects of the Constitution relating to subsidiarity and States' rights were given prominence over grand schemes for further integrationary projects. Moreover, the increasingly decentralisation stance adopted by the EU smoothed the way for the remaining EEA/EFTA countries to quickly accede also after a rapid pre-accession period, in 2013.

The basic choice facing the EU thus concerned the tension between the centralisation and the de-centralisation of powers, which was perhaps exemplified most clearly in the final decision of 2013 taken on the basis of the report by the 2nd High Level Expert Group (i.e. The Tarschys Report II), and designed to coincide with the end of the 2007-13 financial period, to renationalise both the CAP and Regional Policy. Significantly however although the need for 'growth' was again stressed as paramount this was however no longer, as was the case in the Report of the 1st High Level Expert Group, couched within the context of the risks of 'non-growth' to *further integration*. Growth was now seen as *the* end in itself, not merely as the means to support further integration.

The impending entry of Turkey and the remaining countries of the Western Balkans, envisaged sometime after 2015, which would bring the EU up to 35+ in size, however further exacerbated problems over the issue of co-ordination. A point that was duly made in the conclusions to the 5th Cohesion Report published in 2016**.**

From here onwards the integration process then began to evolve in a much more 'intergovernmental' direction. Increasingly then the EU's responsibilities were confined to those policies that were deemed relevant to the maintenance of the internal market, e.g. commercial, fiscal and transport policies, with the supranational level's role in welfare, environmental, and other policies being reduced to a minimum, and often – in the context of the pervasive mood in respect of subsidiarity – simply re-delegated to the national level. Moreover, where the EU was able to maintain its position in the policy hierarchy this was generally done within the context of *variable geometry*.

A significant amount of time and political capital was however devoted to neighbourhood relations, and to what Romano Prodi had termed 'the completion of Europe,' namely, the accession of the countries of the Western Balkans. This, together with Turkish accession, was a long and arduous process, which was not finally completed until 2022, thus bringing the membership roster up to 37 with, Turkey, Albania, Serbia, Montenegro, Bosnia-Herzegovina, and the FYR of Macedonia all acceding at this point.

Within the context of the European Neighbourhood Policy (ENP) a number of European Neighbourhood Agreements were also unveiled between 2008 and 2013 with the Maghreb and Mashreq countries. Moreover, with the emergence of the Mediterranean Free Trade

Area on a solid politico-economic footing by 2020, the Southern and Eastern Mediterranean countries were now better placed than ever to contribute to the development of the region as a whole.

Moreover, with 'political conditionality' now widely regarded as a necessary motor in this process, the 'Copenhagen criteria' were widely credited with helping to define the pathway from traditional 'Associate Status' to new so-called 'EEA-style' neighbourhood arrangements. These agreements were subsequently of course to be subsumed into the MFTA (Mediterranean Free Trade Area).

The main policy objectives in respect of the states of the former Soviet Union remain assuring political stability and reinforcing democratic institutions and the free market. Ukraine, Moldova, Armenia, Georgia and Azerbaijan all move forwards in the Neighbourhood 'process'; while countries such as Turkey, Romania, Slovakia and Poland support future entry for their neighbours, though by 2030 these countries still had not been granted an entry 'perspective'.

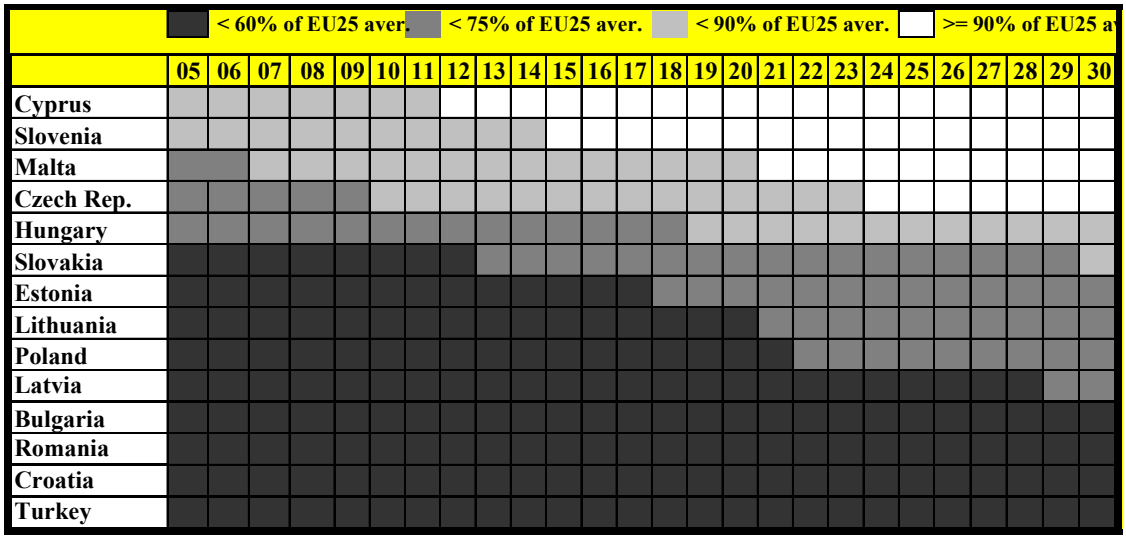
As regards the promotion of a Strategic Partnership Agreement with Russia, and notwithstanding the fact that access to Russia's energy resources remained important for the EU throughout this period, the 'special status' (i.e. outside the general set of Neighbourhood Policy arrangements used for all other neighbouring states) of the EU-Russia relationship actually detracted somewhat from its overall utility. This was particularly so in respect of cross-border relations in the context of the uptake of available funds through the post–2006 New Neighbourhood Instrument, as it was often the case that opportunities for co-operation were missed as it proved rather more difficult than expected to find suitable partners on the Russian side of the border.

In conclusion, after 2005 the EU developed into a 'leaner and meaner' more economically competitive and dynamic grouping, where the free market rationalises resource allocation improving competitiveness (the main Lisbon goal), though it simply could not afford to attempt to do too many things at the one time. Essentially then the EU economy grows by encouraging technological advances and new forms of production, while also continuing to enlarge the size of the internal market. In this way it sought to remain *the* central regional player in this part of the global economy. The global economy underwent a number of significant changes in the first quarter of the 21st century, as did its institutions and rules. The enlarged EU played a significant role in this process though this process significantly affected the individual Member States with social tension increasing in less well performing areas. Cohesion policy was effectively re-nationalised, while the goal of polycentricity was easier to achieve at the national rather than the regional level. The 2004 enlargement intensified the need to re-assess the whole *raison d'être* of the European integration process, and in particular the traditional balance between deepening and widening. With this came also a need to reassess how the EU interacts with its neighbours, particularly in respect of the delicate balance between giving them incentives to reform whilst limiting their appetites for immediate EU entry.

7.2.1.3 Territorial Impacts of the Scenario

According to the *Market scenario* ('1½% a year above': implying growth of 4% a year, if growth is 2½% a year in the EU15), average GDP *per capita* in the 12 countries would remain below 60% of the enlarged EU27 average until 2017 (Graphs 1 and 2). In this year, it would exceed 75% of the average only in four countries (for more detail see the ESPON 3.2 TIR 2004). If growth were to continue at this rate, Slovakia would reach 75% of the average by 2019, while Bulgaria and Romania would still have a level of GDP *per capita* below 75% of the average in 2050.

Taking into account the fact that GDP *per capita* in Turkey as well as that in the Western Balkans states is much lower than that of the EU-15, EU-25 and EU-27, the duration of the corresponding catching-up process (to 75% or 100% of the EU-15 GDP average), in terms either of the first or the second scenario, will exceed considerably that of the 10+2 new countries. Moreover, the accession of Turkey and / or the Western Balkans' states (or other neighbouring states, with the exception of the EEA/EFTA states) will prolong considerably the duration of the catching-up process (to 75% or 100% of the EU-15 GDP average) for the 10+2 new Member States.



[Produced by ESPON 3.2]

Figure 5 'Market' Scenario : Simulation of GDP per capita (PPS) in the 10+2 states, plus Turkey and Croatia 2005-2030

- Assumptions: EU15 GDP +2,5% per year,
- New Members (2004) +4% per year
- Bulgaria, Romania, Croatia, Turkey + 4% per year

Discussing the implications in regional disparities and EU structural policies

In the context of the *Market scenario*, Turkey, the Western Balkans' states and the EEA/EFTA states all enter the EU during the period 2005-2030. For the purpose of this analysis, we term them the 'Potential Accession Countries' / PAC.

As noted previously in the baseline scenarios, the potential enlargement of the EU to states of low economic potential such as Turkey and those the Western Balkans will have a significant effect on EU regional disparities, which are very closely related to the future of the EU structural policies. Though these effects will *not* have the determining influence on future political decisions in respect of EU enlargement[25] they remain important none the less. It would however be illuminating to examine these effects, together with the future effects of the '10+2' enlargement.

[25] This is undeniable given that enlargement to include the 10+2 states was taken and indeed implemented *before* either the political structure to cope with so many new entrants, or the economic resources to pay for enlargement had been realised. This is indeed how the enlargement has usually worked, with new entrants predominantly bearing the costs of enlargement in the expectation of future gain. Moreover, although the 2004 enlargement deviated significantly from what Preston termed 'the Classical Method', with a generous level of pre-accession assistance being given to the prospective new Members, the basic deal remains in place, as new Members will continue to have to substantially adjust their economies to the EU model, and thus ultimately bear the costs of adjustment.

This discussion will focus on three crucial issues: (a) the effects of the population size and GDP level of the recent and future accession countries (b) the impact of the potential accession countries on the eligibility for assistance criteria (c) the time needed for the GDP of the PACs to catch up with the EU-25 average.

The population size and the GDP level of the recent and future accession countries

As we have already seen, the accession of both the 10+2 states and Turkey will add considerable surface area and population, while offering only a small additional amount of GDP. The changes in these dimensions are presented in Table 1 of the baseline scenarios. We repeat below this table in which we have added data on the % difference of the EU-36 (EU27 +PAC) from the EU27 concerning the surface, the population, the *per capita* GDP in PPS and the *per capita* GDP in PPS as a % of the EU25 average (as well as that of the EU27 average).

The resulting data suggests that the accession of the PAC to the EU27 would raise the surface of the EU27 by 35%, its population by 22% and its GDP by only 8%. Inversely, the average *per capita* GDP would lower by 8% and 11% compared to the EU27 on the basis of EU25=100 and EU15=100 respectively (data for 2004).

	SURFACE AREA	POPULATION - Millions - 2004*	TOTAL GDP - Billions EUR 2004*	TOTAL GDP - Billions PPS 2004***	PER CAPITA GDP PPS 2004***	AVERAGE PER CAPITA GDP PPS (EU25 = 100) 2004***	AVERAGE PER CAPITA GDP PPS (EU15 = 100) 2004***
EU15	3.244.479	383,7	9731	9311	24267	108,8	100,0
New 10 member c.	734.059	74,0	477	897	12117	54,3	49,9
EU25	3.978.538	457,7	10208	10208	22303	100,0	91,9
Bulgaria, Romania	348.873	29,7	76	204	6860	30,8	28,3
EU27	4.327.411	487,4	9783	10411	21361	95,8	88,0
Turkey	769.604	71,4	245	464	6500	29,1	26,8
W. Balkans	264.482	24,4	5788	109	4487	20,1	18,5
Norw., Switz, Icel.	468.510	12,1	506	372	30657	137,5	126,3
Potential Acc. Countries (PAC) / Scenario 1	1.502.596	107,9		945	8760	39,3	36,1
EU27 + PAC	5.830.007	595,3		11357	19077	85,5	78,6
EU27 / EU25	8,8	6,5		2,0	-4,2	-4,2	-4,2
EU27 / EU15	33,4	27,0		11,8	-12,0	-12,0	-12,0
CHANGE EU27+ PAC / EU27 %	35	22		9,1	-10,7	-10,7	-10,7

* Eurostat latest forecasts for 2004 population - For the W. Balkans' states estimates taking into account Popul. 2002 (EC / DG Economic and Financial Affairs 2004) and recent population change rates.

** For 2002

*** Eurostat latest forecasts for 2004 GDP - For the W. Balkans' states estimates taking into account GDP in Euros 2002 (EC / DG Economic and Financial Affairs 2004), recent GDP change rates and ratio GDP Euros / GDP PPS for Turkey for 2004

Table 12 Impacts of previous enlargements of the EU as well as the PAC accession

Impact of the accession of the PAC on the 'catching up process' and on the eligibility for assistance

On the basis of the current data and eligibility criteria, the entire territory of Turkey as well as that of the W. Balkans[26] would be eligible for assistance under Objective 1 of the Structural Funds in addition to assistance under the Cohesion Fund.

In the baseline scenario we attempted to evaluate the impact of the accession of the 10+2 states on the eligibility for assistance with the aid of two 'catch up' scenarios. The first sees growth being maintained in these countries at 1,5 % a year above the EU15 average, while the second sees it sustained at 2,5 % above the EU15 average. We have now extended this analysis concerning the 10+2 countries to include coverage of the PAC.

As we noted previously, the continuation of the current approach to structural / cohesion policy in the 'trend' scenario, which stands as a middle course between widening and deepening, could lead to 'catch-up' rates in the 10+2 countries fluctuating between those of the first catch up scenario and those of the second.

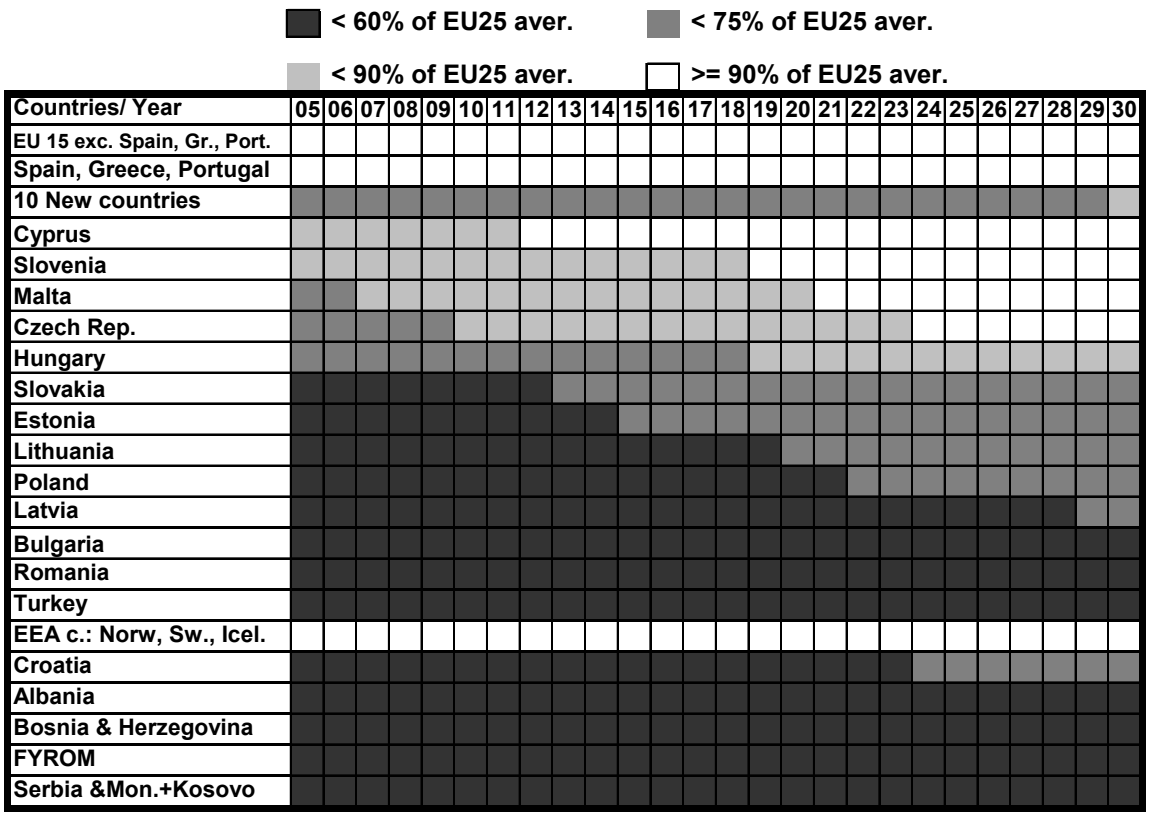
In the framework of the *Market Scenario* emphasis is given to widening and to market liberalization in the enlarged EU, while structural policies are eventually, in effect, re-nationalised. In order to evaluate the effects on the eligibility for assistance in the framework of the Scenario 1, we have thus created a proper 'catch up' scenario. We assume that the 'above the EU15 average' growth rate is sustained at 1,5 % for the 10+2 countries, as well as for the 'poor' future accession countries: Turkey and those of the Western Balkans (i.e. 4% a year if growth is 2½% a year in the EU15). This difference of 1,5% might be even lower. Provided that the estimates we give are indicative, even if the 'above 1,5%' is lowered a little (indicatively, by 0,2-0,3%), the substance of the results will not change. In any case, in the framework of this 'catch up' simulation, less than 1% (of the total 2,5 %) is owed to the Cohesion policy. We have also taken into account the fact that SF / Cohesion Fund aid will be allocated to the three EU15 Cohesion countries (Spain, Greece, Portugal) for some period of time after 2005, with an agreement for the programme period 2007-2013 already existing.

The aid that will be allocated to the "new neighbouring countries' (remaining outside the EU during this period, such as for Moldova and the Ukraine etc) will be limited, consequently we estimate that the % in growth rates in such cases will equal that of the 10+2 new Member States We also take into account here the fact that high growth rates are justified for new neighbouring countries provided that their initial economic base is very low. Finally, the EEA/EFTA countries growth rates are expected to equal those of countries of EU15.

In the Graph 2 we present the time moments in which the GDP of the EU15, the three EU15 Cohesion countries, Turkey and each of the Western Balkans states[27] will reach 60%, 75% and 90% of the EU25 *per capita* GDP.

[26] Including Croatia

[27] This analysis assumes that Serbia and Montenegro do not in fact separate and that Kosovo remains part of Serbia.



For the data sources see Table 12 notes.

Figure 6 Market Scenario : Simulation of GDP per head (PPS) in the EU27 + PAC countries 2005-2030

(See text for the inherent assumptions)

Impacts on territorial cohesion

From the data produced we conclude the following. The average *per capita* GDP of the 10 new Member States (of 2004) will reach 75% of the EE25 average by about 2030. More specifically, the average GDP of half of these countries will not reach 75% of the EE25 average before 2030, while in the middle of the 2005-2030 period the GDP of three of them will not have reached even 60% of EU25s GDP average, while the *per capita* GDP of Bulgaria, Romania and the Western Balkans states (excepting Slovenia and Croatia) will still not have reached 60% of the EU25 GDP average by 2030. Therefore, on the basis of the *Market Scenario*, disparities across national GDPs in the EU36 would be much larger than that either for the EU25 or the EU27.

The same applies in respect of regional disparities. Turkey's eastern regions together with some regions of the Western Balkans will have the lowest *per capita* GDP in the EU36. We will specify the effects on disparities among regions using the above simulation in the next phase of the project. We forecast then that the difference between the neighbouring

(outside EU36) states' *per capita* GDP and the EU27 average will not dramatically decrease in the period 2005-2030.
The final image of the disparities in *per capita* GDP for the EU36 and the neighbouring countries is shown in Fig. 7. The corresponding values have been calculated on the basis of the above simulation. We have tried to illustrate in this Map the two main aspects of the Market Scenario, namely, the lowering of the 'barrier' between EU and the neighbouring countries and the lack of cohesion between national territories in the EU.

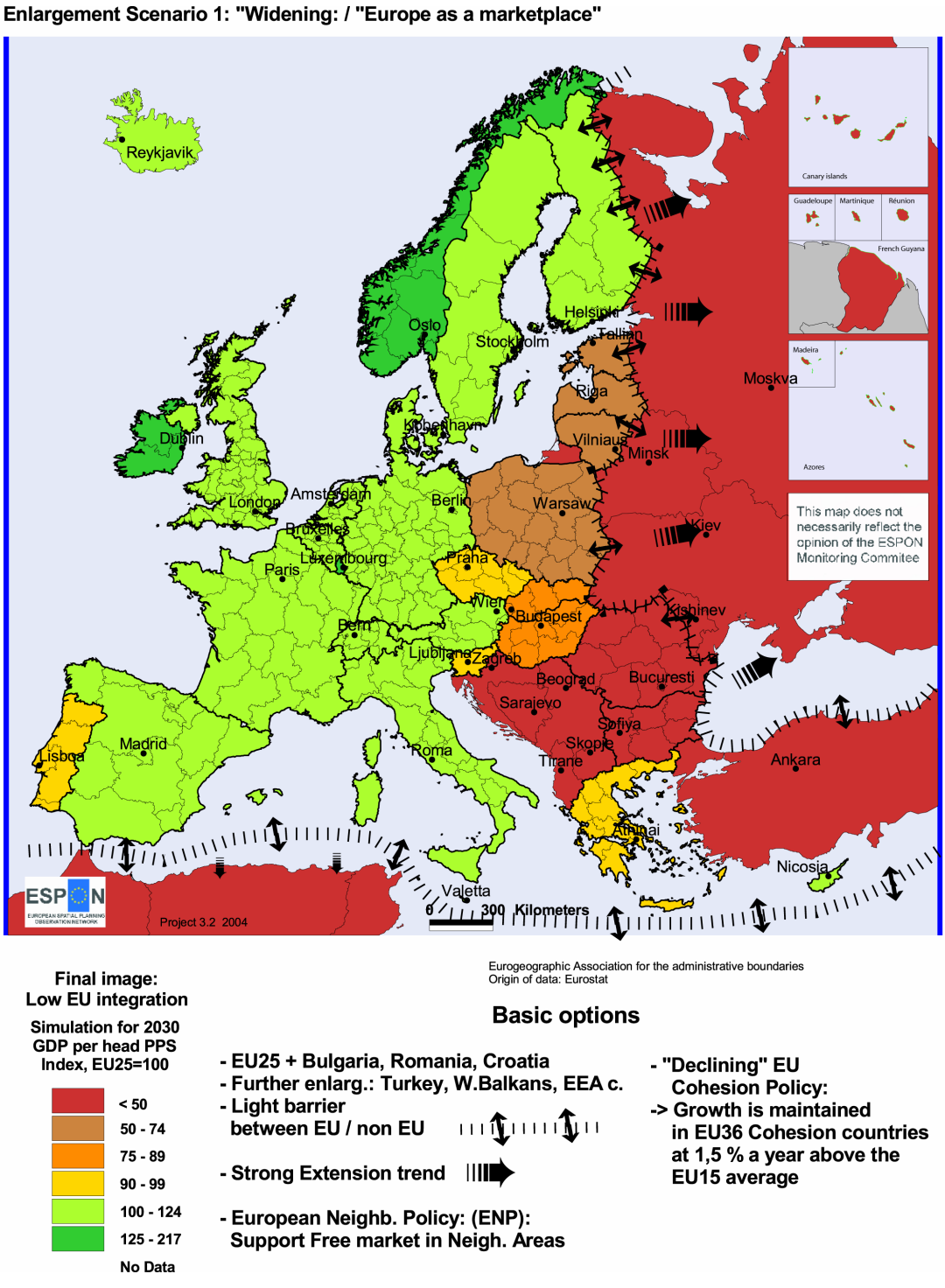


Figure 7 Europe as a 'Marketplace' – The Impact of Widening

7.2.1.4 Final Image of Territory

The Union's territory is rather more loosely integrated than before given the policy re-nationalisation that has taken place in certain areas, while adherence to a view of regional policy that stresses 'endogenous potentials' sees regional disparaties continue to widen still further, both *within* states and *between* them as polycentricity is pursued at the global level given the stress on maintaining *global* competitiveness through the cultivation of traditional MEGAs. Notwithstanding the continuing threat of terrorism and other 'soft security' questions, Europe's border regime remains relatively open.

7.2.2 Scenario 2: Europe as a 'Temple'

7.2.2.1 Scenario Hypothesis

This scenario also sees national control maintained in respect of the enlargement policy process, though Union competences are maintained in respect of cohesion policy, while *territorial cohesion* takes its place alongside economic and social cohesion as a Union objective. Turkish entry is however proscribed as Europe's *Christian heritage* is eventually re-affirmed as a French referendum mandates its government to deny Turkey entry. Lip-service is paid to the Lisbon process, and, as such, progress on issues such as labour market liberalisation is slow. Adherence to the European 'social model' is reaffirmed at the national level in the EU 'core' with more liberalised models of capitalism existing on its Eastern and Western fringes. At the regional level growth is slower but more evenly spread and thus disparities reduce, albeit slowly, as the rate of 'catch-up' growth in Eastern Europe is less than expected, given the costs to the CEE countries of implementing the EUs stringent environmental standards regime. Budgetary issues remain a problem however and cause some of the 'net payers' significant political problems. Finally, the decision not to continue with enlargement *for the foreseeable future* causes significant political problems in both the Balkans and in Turkey, while the Neighbourhood Policy remains at best an inferior alternative to accession for most of those seeking entry. This scenario postulates then that the *temple* remains as a fundamental constraint on the 'invisible hand' of the *marketplace.* The Lisbon goal of 'competitiveness' is still highlighted; though its implementation is now handled rather differently as the Gothenburg principles in respect of 'sustainability' are given a more prominent role. Here the broad forces of communitarianism, welfarism, sustainability, and integration continue to temper the 'market-centred' *intergovernmentalist* approach, while a choice is made for *deepening* over *widening.* As such, only Romania and Bulgaria – to whom promises were already made – gain entry (the EFTA/EEA members declined to apply), while Turkey is finally denied entry once and for all, and the countries of the Western Balkans are left, uncomfortably, in the *anteroom* of enlargement for the duration of this period. Europe then concentrates on implementing its sustainability agenda, which attempts to integrate environmental, welfare and territorial cohesion concerns in an attempt to develop a 'Euro-centric' approach to the demands of globalisation, this can however only be done through further integration, which in itself is only practical if it is undertaken on the basis of the 'variable geometry' approach[28]. Increasing tension however arises between the 'inner' and 'outer' cores over the *ad hoc* nature of the variable geometry approach, and in particular over the costs involved, causing some in the 'outer' core to

[28] The notion of 'variable geometry' was coined originally in relation to the emerging European security debate of the 1980s, where different bodies carried out different tasks in the security field. It has since come to encapsulate a much wider vision of the EU experience where rather than one uniform approach being taken, issues are addressed in different ways by varying groups of states, and/or at different speeds. EMU is a good example of this process in action.

contemplate leaving the Union altogether. Meanwhile, the potential for the Union's 'neighbours' – now certain of their 'marginalised' status to become increasingly troublesome increases.

7.2.2.2 Scenario Process

The 'historic mission' of Europe has always been about more than simply economics and the provision of welfare, in a material sense. The essence of the 'experiment' has always been about undertaking an innovative approach to international affairs, and to the problems of the modern world. It is in this light then that this scenario's developments take place.

Sustainable development and 'renewability' (the Gothenburg 'goals') become the driving forces of the post-industrial economies of Europe. Competition could not realistically take place with the newly industrialising and emerging market countries on the basis of reduction to the cost base. Rather, the need to add 'value' was seen as the correct approach. Europe's competitive advantage lay in doing things cleaner, more quietly and at less cost to the environment. As such, though the Lisbon 'goals' of greater competitiveness remained important, this was so only to the extent that they were buttressed by the wider 'Gothenburg agenda'.

The impetus to move in this direction was given by the ratification of the EU constitution in 2008. Although, initial misgivings existed among some sections of the populace, it was finally acknowledged that the measures contained within the Constitution, particularly in respect of its approach to institutional and voting arrangements, were vital if the EU was to maintain any semblance of coherence, politically. Moreover, the internal market reforms needed necessarily entailed that further economic integration be undertaken.

Although the Constitution – within the context of subsidiarity - set out the limits of rights and responsibilities between the Union's constituent parts, its effect was actually rather more profound. In effect, rather than simply drawing a legal border between what was, and was not, a power reserved to the Union, in typical 'neo-functionalist' style it generated the potential for many new forms of political spillover to occur, as effective functional cooperation in one field suggested the need for further beneficial cooperation in another contiguous area.

Perhaps the first concrete indication of this emerged in the context of the debate over the remodelling of the Union's Cohesion and Regional policies that took place in the aftermath of the 2004 enlargement in 2006. At this point, a significant body of opinion existed arguing that we should, in effect 're-nationalise' these policies. The impact that the Structural Policies in particular had on cohesion, it was argued, was minimal, and the costs of enlargement were set to grow exponentially some claimed, particularly in the period after 2013 when the next financial perspective would need to be put in place, at the same time as the 'GDP subsidies,' in the form of fiscal transfers from the core members to the 2004 entrants, reached their peak.

Such concerns generally reflected the view that enlargement had been taken as far as was feasibly possible. Indeed, the accession of Bulgaria and Romania scheduled for 2007 was drawn out for over two difficult years of final negotiations, and it was not until the beginning of 2009 that they were allowed to accede. The entry of Bulgaria and Romania rekindled old arguments over 'who pays' for enlargement, effectively poisoning the debate over the Structural and Cohesion funds for some time to come. Moreover, the bureaucratic *driver* which saw the process of enlargement being tied to that of integration more generally, with the Commission as the main 'cheerleader' for this approach was decisively checked when, in 2009, a number of Commissioners – echoing the earlier stance taken by Frits Bolkestein, a

previous Commissioner for the Internal Market – made it clear that, for the foreseeable future at least, 'enlargement could go no further.'[29]

In this light, the need to straighten out 'once and for all' the issue of how the goal of cohesion was to be paid for, and at what level it was to be implemented at, effectively concentrated minds on the need for deepening at the expense of widening. Debate over this issue was further focussed by the impending entry of Turkey, though its continuing refusal to recognise the legitimate Government of Cyprus provided an effective block on accession as the need to deal with this issue had been explicitly raised at the outset of the Turkish negotiation process in 2004.

The years after 2010 were however to prove some of the most difficult and indeed darkest in the history of European Integration, as concerns over budgetary issues and re-distribution/cohesion became interlaced with what can only be described as an anti-globalisation 'backlash' across large parts of the Union, specifically in respect of both 'economic' and 'identity' issues.

There were essentially three elements to this. In terms of 'identity issues' two separate groupings of disgruntled Member States could be identified. Firstly, the then still 'new' Member States of 'Catholic Central Europe', such as Austria, Poland and Lithuania – with no small measure of support from France – argued vocally against the widening of the Union to include non-Christian countries. Basically they argued that the social consequences of such a significant 'cultural' widening of the EU would be disastrous. A second group of countries also sought to prevent further widening, again citing its potentially disastrous social consequences, in particular with respect to the tensions raised by the fear of further immigration, particularly from Turkey. Paradoxically, included in this group were some of the countries with, historically speaking, the most 'liberal' immigration policies in Europe, i.e. countries such as Denmark and the Netherlands, backed by Germany.

In more purely economic terms, Sweden, Spain and Ireland became increasingly hostile to further enlargement because of what they saw as the unenviable economic and fiscal consequences it had for them. Not only were they expected, in effect, to 'export' medium-level skilled jobs to the new member countries (a process that began after the 2004 enlargement, and continued with the accession of Romania and Bulgaria in 2009), but they were now also expected to increase their contribution to the EUs cohesion goals through continuing fiscal transfers. Such a situation was of course nothing new for long-term integration sceptics such as Sweden, but to those, like Spain and Ireland, that had benefited themselves for so long from such transfers it came as a rather rude awakening to, after 2013 at least, join the ranks of the EUs 'net contributors'.

Problems in respect of Turkish membership basically mirrored the wider issue of the EUs relations with the Islamic world, which were further exacerbated by what can only now be seen as the EUs ill-advised attempt to bind the countries of North Africa in particular too closely to the European Integration project. Increasingly across the region manifest tension arose between some sectors of the governmental elites of these countries who hoped that the economic benefits of Mediterranean free trade would help stabilise their uncertain political legitimacy, and the vast majorities of their populaces enraged by other elite factions who either saw the agreements as economically inadequate, or who took a wholly different view of the acceptable level of interaction across the Mediterranean.

As such, the Mediterranean Free Trade Area never materialised, while the ENP in the Southern and Eastern Mediterranean proved to be either 'too little' or 'too much' depending

[29] See 'Bolkenstein warns EU growth will create chaos' The Financial Times 23/11/04 for the original article, and 'Rebellious Commissioners: Thus far and no further' The Economist, 7/709.

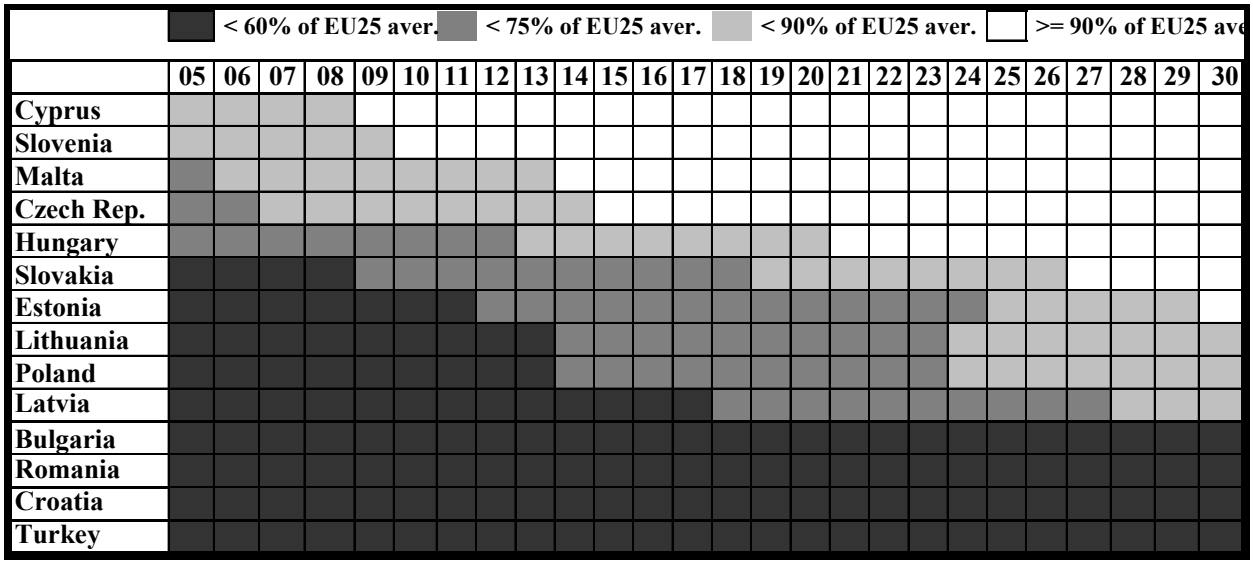
on the view of the recipient. This inevitably however had a significant effect on the whole process of integration as EU 'influence' across it southern border declined dramatically. In addition, the failure to beneficially 'engage' the countries of the EUs southern 'border' had not only the inevitable security implications in a conventional sense, but the significant differences that were subsequently to emerge in terms of environmental standards threatened to dwarf even the most pessimistic security projections in terms of the potential scale of its implications.

By 2015 then the EU was in significant difficulty and in retreat across many fronts. Indeed, the inevitable squabbles that resulted from the ill thought out move towards *variable geometry* combined with the problems over the immigration and enlargement issues, and the wider problems of a fiscal and/or economic nature saw the inherent tensions between the Member States, the Commission and the EUs neighbours stretched almost to breaking point, with a number of Member States (i.e. the UK, Denmark, and Sweden) contemplating, for various reasons, withdrawal from the Union as they individually perceived the general 'bargain of membership' to be becoming increasingly unpalatable.

In conclusion, though the internal 'storm' of the years between 2010 and 2020 was eventually ridden out, as threats of secession did not come to pass, significant problems remained, in particular the need to effectively re-model relations with those beyond the Union's now *permanent* external border. Though the gains made across the EU after 2020 in terms of cohesion, economic vitality and sustainability would be difficult to maintain if the issue of political stability *beyond* the external border continued to be ignored. As such, for many of the EUs neighbours, accession will – EU declaratory policy notwithstanding - remain their ultimate goal, while others want relations to be kept at 'arms length'. Ultimately however the EU cannot exist in isolation of its neighbours.

7.2.2.3 Territorial Impacts of the Scenario

According to the *Temple scenario* ('2½% a year above': implying growth of just over 5% a year if growth in the EU15 is 2½%), then convergence would, of course, happen within a shorter period of time. Nevertheless, the number of years involved remains considerable for many of the countries. For Poland, for example, even at this rate, it would still take 20 years or more for GDP *per capita* to reach 75% of the EU average and many more years to converge to the EU average or close to it. For Bulgaria and Romania, it would take much longer than this. Nevertheless, at this rate of growth, the number of regions in the accession states that require structural support because their GDP *per capita* is below 75% of the EU average is reduced much more quickly than if growth were to be slower.



[Produced by ESPON 3.2]
Assumptions: EU15 GDP +2,5% per year ; New Members (2004) +5,2% per year ; Bulgaria, Romania, Croatia, Turkey +2,5% per year

Figure 8 'Temple Scenario' : Simulation of GDP per capita (PPS) in the 10+2 countries plus Turkey and Croatia 2005-2030

Discussing the implications in regional disparities and EU structural policies

In the framework of this scenario, only Bulgaria, Romania and Croatia accede to the EU25 during the period 2005-2030. Turkey, the rest of the Western Balkans and the EEA/EFTA states are thus considered here as 'neighbouring countries'.

The population size and the GDP level of the recent and future accession countries

The corresponding changes in EU area, population and GDP are also described both in the baseline scenarios and the Market Scenario. (See Table 1of the Market Scenario).

Impact on the 'catch up process' and on the eligibility for assistance

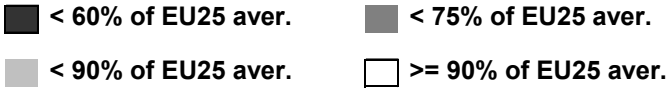
On the basis of the current data and eligibility criteria, the entire territory of Bulgaria, Romania and Croatia will be eligible for assistance under Objective 1 of the Structural Funds, as well as for assistance under the Cohesion Fund. In the framework of the Temple Scenario, emphasis is put on deepening (integration) through the intensification of the EUs structural policies. The EUs borders are seen as a strong barrier separating the EU from its neighbouring countries. We will show however that this barrier also entails increasing differences in incomes between those 'inside' and those 'outside'.

In order to better evaluate the effects on the eligibility of assistance in the framework of the Temple Scenario, we have created a proper 'catch up' scenario (See Graph 4). We have assumed here that the 'above the EU15 average' growth rate is sustained at 2,5 % for the 10+2 countries, as well as for Croatia (i.e. 5% a year if growth is 2,5 % a year in the EU15). This 'above' 2,5% might be even little higher, although this would not change the substance of the results. In any case, in the framework of this 'catch up' simulation, at least 1% (of the total 2,5 %) is due to the Cohesion policy. We have also taken into account the fact that SF / Cohesion Fund aid will be allocated to the three EU15 Cohesion countries (Spain, Greece, Portugal) for some time after 2005.

The aid that will be allocated to the neighbouring states (i.e. those remaining outside the EU during this period, such as Turkey, the remaining Western Balkans' states, the EEA/EFTA

states, Moldova and the Ukraine etc) will be lower than that allocated to the 10+2 new Member States, i.e. 'above 1,5 %' of the EU15 average (compared to the 'above 2,5 %' for the 10+2 Member States). The EEA/EFTA states growth rates are assumed to equal those of the EU15 countries.

In the Figure below we present the time moments in which the GDP of the EU15, the three EU15 Cohesion countries, Turkey and each of the Western Balkans' states[30] will reach 60%, 75% and 90% of the EU25 per capita GDP.



Countries/ Year	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
EU 15 exc. Spain, Gr., Port.																										
Spain, Greece, Portugal																										
10 New countries	55																									
Cyprus																										
Slovenia																										
Malta																										
Czech Rep.																										
Hungary																										
Slovakia																										
Estonia																										
Lithuania																										
Poland																										
Latvia																										
Bulgaria																										
Romania																										
Turkey																										
EEA c.: Norw, Sw., Icel.																										
Croatia																										
Albania																										
Bosnia & Herzegovina																										
FYROM																										
Serbia &Mon.+Kosovo																										

For the sources of data see in Table 1 notes.

Figure 9 'Temple' Scenario : Simulation of GDP per head (PPS) in the EU27 + PAC countries 2005-2030

(See for the assumptions in the text)

[30] Again assuming here that Serbia and Montenegro stay together, and that Kosovo remains part of Serbia.

7.2.2.4 Impacts on territorial cohesion

On the basis of the data we conclude the following. That the average *per capita* GDP of the 10 new (2004) Member States will reach 60 % of the EU25 average in 2008, 75 % of the same average in 2019 and 90 % in 2028. Although, in the middle of the period 2005-2030 the GDP of half of the 10 new countries will have exceeded 60% but not 75 % of the EU25 average. The *per capita* GDP of Bulgaria and Romania will not have reached the EU25 average by 2030, while the GDP of Croatia will reach this level by 2014. Moreover, in spite of the fact that the 'catch up' rates are quicker in comparison with the Market Scenario, the GDP of an important part of the EU population will remain under 75 % of the EU25 average in 2030. As such, the pressure for change (i.e. the further strengthening or weakening of EU structural policies) will be considerable.

Finally, the *per capita* GDP of both Turkey and the Western Balkans', as well as that of the other neighbouring countries will be very low. Moreover this difference between all of these states and the EU27 average will further increase over the period 2005-2030.

GDP inequalities *among the regions* of the EU27 (+1) will be rather less than in the case of the Market Scenario, although they will remain significant even during the period 2015-2030. Turkey's eastern regions together with some regions of the Western Balkans will have the lowest *per capita* GDP in the EU36. We will further specify the effects on disparities among the regions using the above simulation in next phase of the project.

The final image of the disparities in terms of *per capita* GDP for the EU and the neighbouring countries in this Scenario is shown in Fig.10. The corresponding values have been calculated on the basis of the above simulation. We have attempted in this Map to illustrate the two main aspects of the Temple Scenario, namely, the strengthening of the 'barrier' between the EU and the neighbouring countries and the increase in the level of cohesion across national territories in the EU.

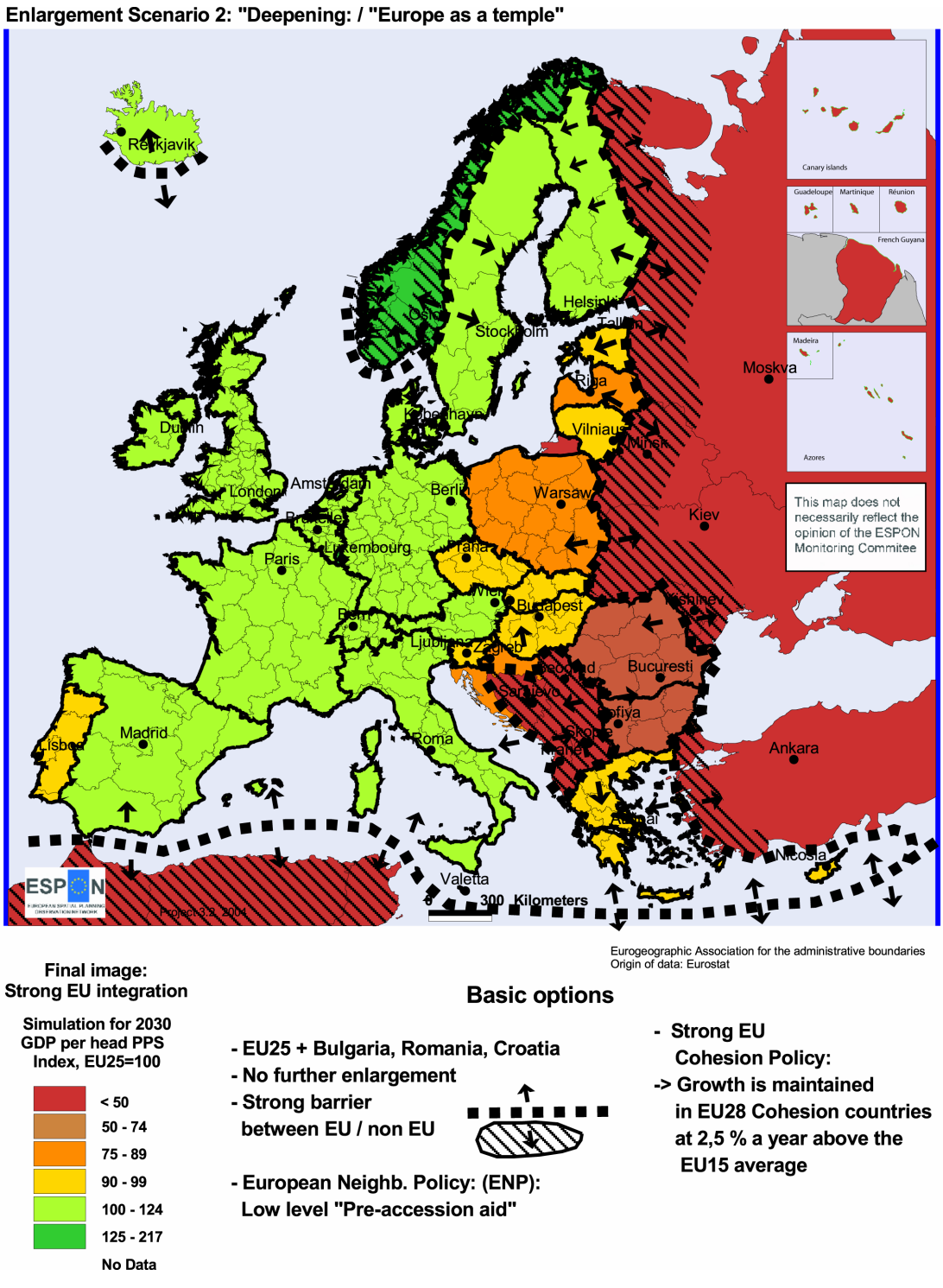


Figure 10 Europe as a 'Temple' – The Impact of Deepening

7.2.2.5 Final Image of Territory

The Union's territory remains integrated and *solidaristic,* with regional policy continuing to be based on these principles in addition to the increasing role given to sustainability and cultural heritage issues. Polycentricity is stressed at the regional level with development outside the *pentagon* preferred over the continuing overdevelopment of the pentagon MEGAs. Given the pressure created by the decision to discontinue the enlargement process the pressure on Europe's border regime increases significantly. This has a significant impact on the economic development of some of the newer Member States who still maintain a wide range of linkages (usually at the local level) with their neighbours, who have now been denied entry.

7.2.2.6 Conclusions: Basic differences between the two 'final images'

As noted at the beginning of this document, scenarios were used here in a sense to present 'artificially' generated potential alternative futures in the context of EU enlargement. This was particularly difficult here because of the necessarily long term and often scripted nature of EU policy commitments in this field. Moreover, as we are dealing with a discrete number of policy variables it is quite easy to project back and forward in time to discern 'patterns of behaviour' etc., which then become the accepted norm. Basically, when the future is already 'made', it is rather difficult to think 'outside the box' while at the same time remaining 'realistic'.

The two alternative scenarios sketched out here must therefore be seen in this overall context, as being artificially constructed to be something like polar opposites in order that a clear differentiation from the baseline scenario and its likely forward projection (in terms of policies and agreements already entered into) can be made. The apparent differences between the two scenarios have thus been stretched to the limit, though in reality what we are seeing is perhaps a continuation of the 'different forms of capitalism' debate. In the *market* scenario, economic growth is privileged over more solidaristic concerns, but this is not to imply that in the *temple* scenario the need for economic growth is eschewed, rather, it reflects the differences between 'bottom up' and 'top down' approaches in terms of economic development.

In practice, and taking all of the above caveats into consideration, the differences between the two final territorial images highlight the practical implications of the scenario choices made. In a policy-sense the market scenario is 'bottom up', while the temple scenario is 'top down', specifically in relation to the question of subsidiarity and the re-nationalisation of certain policy areas. In terms of polycentricity, the market scenario focuses on the global context, while the temple scenario looks to the regional level, particularly in relation to the fostering of 'alternative economic poles' to the traditional European pentagon. Socially, Europe *may* be richer but looks like being much less cohesive – socially and territorially - under the market scenario, while in terms of external relations, the decision to 'end' enlargement, taken under the temple scenario would probably have profound and potentially extremely negative implications not seen in the market scenario. Both scenarios have the same basic goal, but rather different ways of achieving it. The test case here is undoubtedly what 'model' works best in terms of East European 'catch-up', which would (if successful) in itself be the best way to guarantee future European economic health. The question as ever in politics remains one of balance, which model would do the most good, while at the same time doing the least damage?

8. Thematic prospective scenarios 'Rural development'

Ed Dammers (NISR) & Marco Keiner (ETH Zürich)

8.1 Scenario base 'Rural development'

8.1.1 Present situation and trends in agriculture and rural areas

Agriculture

Agriculture experiences substantial *structural changes*. Cost-intensive technological progress leads to higher agricultural productivity and production. This causes an increasing supply on the markets. The increased supply, together with the competition with producers from abroad causes a spill-over, a decrease in prices and consequently a decline of farmers' revenues. In this way a vicious circle is set in motion. Important indicators for this structural change are the number of farms and farm size.

In the EU-15 the *number of farms* dropped from 7.4 million in 1995 to 6.8 million in 2000. Small farms (0-5 ha) dominate with 3.9 million in 2000. Only 0.6 million farms are larger than 50 ha. In the CEECs farming is characterised by a large number of holdings: 9.2 million (30% more than in the EU-15). Cultivated land, however, amounts to 50 million ha (40% of that in the EU-15).

Concerning *farm-size* a distinction must be made between the physical and the economic size. In 2000, the average area of a farm in the EU-15 was 18.7 ha. The difference between the Member States, however, is remarkable. The smallest average farm sizes existed in Greece (4.4 ha) and the largest in the UK (67.7 ha). In all CEESs the share of small holdings in the total number of farms is high: from 42% in Latvia to 97% in Bulgaria. Most of the small farms are subsistence or part-time farms. Large farms (more than 50 ha) include mainly commercial companies and co-operatives.

The Standard Gross Margins (SGM) of a holding is a measure for its economic strength. From 1989 to 1997 the average SGM in the EU-15 rose in all Member States, most of all in the Netherlands, Belgium and Denmark. In 1997, the average SGM per holding was highest in the Netherlands, followed by Denmark, the United Kingdom, and Belgium. In 2000, in the new member states, Slovenia has, by large, the highest SGM, followed by Cyprus and the Czech Republic.

Regarding *agricultural production* the following trends can be observed:

- The production of *major crops* continued growing. Community support to cereals, oilseeds and protein seeds as well as the fall of the number of cattle induced an increase in the crops for sale. The CAP reform in 1992 only modestly affected these major trends.
- *Permanent crops* decreased. The main reason was the pulling up of vines intended for ordinary wine production. This results partly from Community support. Wine production concentrated on the name areas (quality wines). The orchard surfaces decreased in the northern Member States but remained constant in the southern Member States.
- Between 1975 and 1995, *surfaces still in grass* decreased by 12% in the EU-9. The cattle and sheep rearing areas in plains were most affected. Only some cattle-rearing areas (Ireland, Limousin, Umbria) saw their surfaces still in grass increasing. The period was marked by the milk quotas (1984) and the decline of livestock-farming resulting from it.

With regard to *rural areas* five different categories can be distinguished:

- *Rural areas in urbanized regions* are situated in the periphery of important agglomerations, especially in the Pentagon and near the large cities. Many of these areas profit from the presence of residential areas, industrial estates, and recreational amenities. They are affected by high socioeconomic dynamics in terms of population density and urbanisation. This reinforces the trend towards scattered settlements and increased pressure on land-use.

- Many coastal areas near the Baltic, the North Sea, the Atlantic Ocean, and the Mediterranean have a well developed tourist industry and can be characterized as *rural areas attractive for tourism.* The same is true for mountain areas in the Alps, the Pyrenees and to a lesser extend in the Tatra. The tourist industry contributes to a high economic viability. Moreover, it causes the in-migration of many young people from the surrounding areas. In high seasons, however, tourism puts nature, landscape and environment under pressure.

- *Rural areas with a variety of activities* are for instance situated in Devon in the United Kingdom, in regions in the Middle of France, and in the Po area in Italy. These areas are highly dependent on rural activities but additional activities, like service for out-door recreation, manufacturing or local crafts, generate additional incomes. Socioeconomic viability is moderate. It is uncertain whether agriculture will survive or the economic structure will become more diversified. Landscape elements are developed to some extent in these areas.

- *Rural areas where agriculture dominates* are less diversified than the rural areas with a variety of activities. These areas can be divided into two subcategories. Areas in which agriculture is highly productive and in which the processing industry plays an important role are e.g. found in Bretagne in France and in England. Their socioeconomic viability is moderate or high. Intensified and large-scale agriculture, however, puts the environment under high pressure. Areas in which agriculture is traditional and has a low productivity are found in Galicia in Spain, in Poitou-Charentes in France, and most of the CEECs. Their socioeconomic viability is low. In these areas environment is under low pressure.

- *Rural areas with low accessibility* are located in the middle and high mountains, isolated plateaus, and peripheral areas, e.g. in Northern Scandinavia and South-Eastern Poland. They are characterised by large natural landscapes and small scale cultural landscapes dominated by marginalised agriculture. Out-migration of younger people causes an aging of the population. This is sometimes further enhanced by the in-migration of retirees. Many of these areas loose the critical mass which is necessary for the maintenance of services and infrastructure.

Rural areas are affected by different but related trends. This varies, however, significantly according to their physical, socioeconomic, demographic and other characteristics.

- *Towards the post-productivist country-side.* Changes related to this trend are e.g. growth of alternative farm activities and increasing investments in the quality of the environment. Rural areas are commodified by marketing their characteristics. Especially rural areas with a variety of activities or with low agricultural productivity are subject to this trend.
- *Changing role of agriculture and food-supply chains.* The CAP reforms stimulated a shift from the agri-industrial towards the multi-functional model of food-supply chains. Animal diseases and food scandals put food quality, food security and animal welfare high on the agenda. As a result, more attention is paid now to the origins of food and to the production methods applied, especially in rural areas in urbanized regions.

- *Towards consumption of different ruralities.* Many rural areas have turned to out-door recreation or tourism. This is not only true for rural areas attractive for tourism but also for rural areas where agricultural productivity is low or with a variety of activities. The urbanites visiting rural areas and the regular residents can be regarded as consumers of different ruralities. This may pose a challenge on the prevailing culture.
- *Localities as resources of identity formation.* The self-identification of rural areas is a key to spatial development. The constructed identities must fit local needs and extra-local opportunities. Rural areas with natural, cultural and other assets, e.g. rural areas attractive for tourism, with low agricultural productivity or with a variety of activities, gain importance.

8.1.2 Past and present EU policies

The CAP has its foundations in the *Treaty of Rome* (1957) establishing the EEC. Self-sufficiency was a prime objective of the fledgling Community. The common market, with its protected external borders, was established to counter the fluctuations in the availability and prices of food and to raise the level of production. Principles commonly cited were market unity, community preference, and common funding. The most important measures were – and still are – income support, price support, import tariffs, and export subsidies.

The CAP was so successful that within 20 years Europe produced more than enough food for its own population. Exports were rising sharply and surpluses mounting ('butter mountain', 'milk lake'). The Council Directive on Less Favoured Areas (1975) introduced an explicit territorial dimension into the CAP. It provides payments to farmers in areas characterised by permanent handicaps. In 1988 the LFA scheme was incorporated into the Structural Funds.

It became increasingly clear, however, that the production growth was achieved at the expense of nature and environment in Europe and the distortion of the international markets. Milk quota was introduced in order to limit milk production. Income subsidies were linked to measures like set-aside, and agri-environmental measures were implemented to stipulate environmental conditions to other measures. This led to some new territorial aspects in the CAP.

In the beginning of the 1980s Regional Policy began in earnest. Funding was used to finance schemes for – among other aims – the development of rural areas with few alternatives to agriculture. In 1988 the budget was doubled and there was a shift from individual project support to a programme-based approach. The following objectives were relevant for agriculture and rural areas: *Objective 1* ('Structural adjustments and development of less developed regions'), *Objective 5a* ('Speeding up the adjustment of agricultural and fisheries structures'), *Objective 5b* ('Facilitating development of rural areas'), and *Objective 6* ('Promotion of development in regions with exceptionally low population density'). The Community Initiative LEADER was introduced to encourage integrated local development strategies.

The system of protected European markets was in danger of collapsing under the weight of its own success and was becoming too expensive to maintain. The pressure for reform was intensified by the GATT and WTO negotiations. In response to this, more efforts were made to mitigate the negative side effects. The EC began a shift in expenditure from production support to income support and rural development.

The MacSharry reform (1992) was a milestone in this process. The reform decoupled agricultural payments from production levels and introduced the set-aside system. *Agenda 2000* (1999) was another milestone. It defined two pillars of the CAP. *Pillar 1* contains

among other things:
- commodity market support with intervention buying or private storage aids
- direct payments, often with quotas and area ceilings to limit expenditure
- supply management tools such as quotas on milk supplies and compulsory arable set-aside
- other elements such as environmental or animal welfare requirements

Pillar 2 covers measures aimed both at the agricultural sector and the wider economic development of rural areas throughout the EU. Support offered under these measures can cover:
- improving farm incomes and production conditions of farmers
- less favoured areas and areas subject to environmental constraints
- agri-environmental measures
- investments to improve production, processing and marketing of forestry products
- measures promoting the adaptation and development of rural areas

'Modulation' was introduced to switch funding from Pillar 1 to certain elements of Pillar 2. This implied a further shift in favour of rural development. The mid-term review defined some additional changes in the CAP, which were also needed to accommodate the expansion of the EU with ten new Member States. Despite all reforms the CAP still remained a costly endeavour: in 2002 agricultural expenditure accounted for 45% of the EU budget.

Since 1999 the new Member States received aid from the pre-accession programme SAPARD. SAPARD interventions were oriented towards three bottlenecks: the regional capital supply (e.g. by providing support to agricultural holdings), the regional market potential (e.g. by improving processing and marketing), and the geographical position (e.g. by improving rural transport infrastructure) (IRS, 2004). After their accession Pillar 1 direct payments were phased in gradually. The new Member States receive substantial payments for rural development.

Regarding the Structural Funds, the end of the 1990s marked the emergence of a new approach. Budgets were not only cut but also concentrated in order to increase their effectiveness. The six priority objectives were reduced to three. Objectives relevant for agriculture and rural areas are:
- *Objective 1* ('Development and structural adjustment of areas most lagging behind')
- *Objective 2* ('Economic and social conversion of areas facing structural difficulties')

Although the CAP was primarily designed to improve the productivity of agriculture it has significant territorial impacts. Its impact on agriculture and rural areas varies from region to region depending on specific physical, socio-economic, and other conditions:
- A certain limitation of over-production has occurred. For instance cereal production in the EU-12 declined from 170 million tonnes in 1992 to 165 million in 1995. The fall in intervention prices increased the strength of the market. Because of that, productions with industrial purpose, e.g. colza, strongly increased and intensified. Moreover, new crops competitive on international markets appeared, e.g. flowers in the Bergamo Province.
- Partly due to market forces and partly owing to the CAP, a dualisation of agricultural production has taken place. Concentration and an intensification of production occurred in the most fertile areas and more extensive agriculture and agricultural abandonment took place in the LFAs. In the new Member States, the existing dualisation is also a major problem.
- Intensified arable and diary farming have caused serious damage to landscapes and environment in open fields, polders and deltas. The scaling-up of production has also occurred most profoundly in the open fields. In many British areas bocage landscapes were changed into open fields. There are also many areas in which agriculture is

marginalising, e.g. high and low mountains.
- Pollution by agriculture is reduced but not stopped. The intensification of certain agricultural productions, in particular in the field of cereals, is still topical and the expansion of irrigation also contributes to it. The intensification of livestock-farming in or near the cereal areas is also noticed. A number of positive developments, however, can be observed as well. Between 1992 and 2001, for instance, 500,000 ha have been afforested.

Regarding SAPARD priorities varied between countries. In Poland and Slovakia improvements of the agri-food business was the main priority. In Latvia and Hungary most resources were invested in farms. SAPARD had a stronger impact on territorial cohesion in countries like Poland, with large areas dependent on agriculture, than in countries like the Czech Republic, where significant steps towards the restructuring of agriculture had already been made (IRS, 2004).

The Structural Funds generate different effects on different levels. Rural and other areas outside the Pentagon (especially in Greece, Portugal and Spain) receive substantially more assistance than areas inside. The bulk of the assistance, however, goes to urban areas although sparsely populated rural areas receive most spending per capita. While contributing to territorial cohesion on the macro level it works against it on the meso level. On the micro level, e.g. in rural areas like Calabria and Toscana, the Structural Funds contributed to the stabilisation of settlement patterns and the strengthening of the regional and local levels of government.

8.1.3 Driving forces behind agriculture and rural areas

Key factors behind *structural changes in agriculture* are:
- In the last decades the *markets for agricultural products* were characterised by increasing globalisation. At the same time real food prices and the proportion of income spent on food declined. These dynamics put farmers' revenues under pressure and gave an impulse to the scaling-up of production in order to lower production costs. At the same time, however, the demand for quality products increased, creating niches for regional and organic products.
- The global markets for agricultural products are seriously distorted by export subsidies and import tariffs. Although many developing countries are able to produce against relatively low costs they are hindered in gaining their market shares. *WTO negotiations,* aiming at the removal of these market distortions, may put small farms and farms in less favoured areas further under pressure.
- *EU Enlargement* is another factor with an impact on agricultural production. After the enlargement by 10 new Member States in 2004 the arable area of the EU doubled and over 100 million food consumers and 9.2 million farms were added to the internal market. For farmers in the old and in the new Member States this implies growing markets but also increased competition.
- The factors just mentioned stimulate *technological innovations* in the agricultural sector. Increased competition makes investments in cost-intensive innovations like new machines, fertilizers, herbicides and fungicides necessary in order to maintain and gain market shares. Technological innovations in their turn lead to higher agricultural production.
- Some sorts of agricultural production demand large amounts of *energy*. Rising energy prices may therefore generate increasing production costs. This is especially true for greenhouses demanding much energy for heat and light in order to stimulate the growth of crops. At the same time demand for sustainable energy like biomass and wind energy is growing, providing new opportunities for farmers and rural areas.

Main factors behind the *development of rural areas* are:

- The rise of the *experience economy* is a driving force behind the 'post-productivist country-side' and the 'changing role of agriculture and food-supply chains'. With rising incomes more consumers are willing to pay for safe and high quality food products, alternative farm activities like landscape management, and the quality of the environment.
- *Migration* has a significant impact on the socio-economic viability of rural areas. The loss of younger people and the in-migration of retirees have left many rural areas as 'aging areas'. As a result these areas may loose the critical mass which is necessary for the maintenance of services and infrastructure. This is especially true for peripheral rural areas.
- The increasing amount of *leisure* has an impact on the 'consumption of different ruralities'. The number of urbanites 'consuming' rural areas has increased significantly in the last decades. The same is true for the time they spent in rural areas.
- The significant increase of *mobility* has the same impact. Many rural areas have turned to out-door recreation and tourism now as an alternative development strategy. The commodification of local resources like natural landscapes and cultural heritage has helped to strengthen the base in large parts of rural Europe.

Reforms of the CAP, RDP, and the Structural Funds are stimulated by the following factors:

- *Interest groups*. In the 1945 – 1975 period, agricultural interest groups formed an effective lobby for the introduction and the further development of the CAP. In the 1975-2004 period, NGOs (environmental groups and third world groups) became more and more effective.
- *Animal diseases.* Epidemic diseases like BSE and FMD caused large economic negative impacts and large collective investments in order to combat the diseases. In the subsequent CAP reforms more and more attention was being paid to these issues.
- *WTO negotiations.* The GATT and WTO negotiations aim at realising more open and competitive global markets for agricultural and other products. The pressure for CAP reforms was significantly intensified by these negotiations.
- *EU Enlargement.* Almost every entry of a group of new Member States into the EU generated larger budgets and adaptations of the CAP, RDP, and Structural Funds. The accession of the CEECs, however, implied that the same budget for Pillar 1 payments must be divided by more farmers because it was decided to freeze the budget until 2013.

8.1.4 Scenario hypotheses

Two scenarios have been developed for the theme 'Rural development': 'Open Market' and 'Sustainable Rurality'. Both scenarios are from the prospective policy type, assuming that policy changes will occur and exploring the territorial and other impacts of these changes. The scenarios represent two different 'schools' in thinking about the reforms of the CAP, RDP and other EU Policies: the 'liberalization model' versus the 'European model'.

In 'Open market' the evolution of agriculture and rural areas is mainly driven by market forces. This is the result of the outcomes of the WTO negotiations and a deliberate EU-policy aiming at reducing subsidies, with the exception of payments contributing to the improvement of R&D. Criteria for food safety and the environment are only implemented to the extent that this can be done in a cost-effective way. Ecological sustainability is implemented at a low pace. Rural development is considered to support agriculture and tourism and abolished at last.

In 'Sustainable rurality' competition, environmental conditions and territorial cohesion are stimulated by policies in order to transform the enlarged internal market into a 'sustainable economy'. Criteria for food safety, animal welfare and the environment are respected. In cases of conflict with economic growth, priority is given to these concerns. Rural development is considered to support the economic competitiveness of rural areas but also social cohesion and the quality of the environment. Economic diversification in rural areas is actively promoted.

8.1.5 Sources of information

As sources of information we have first of all used the results of other ESPON projects (mainly 1.1.2 'Urban-rural', 2.1.3 'CAP impact', and 2.2.2 'Enlargement'). But in order to complete missing information we have also used additional sources.

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8.2 Thematic prospective scenarios

Two prospective policy scenarios for the period 2006 - 2030

The description of the trends in part I looked more than 25 years into the past. The same is true for the description of the most relevant policy developments and the driving forces behind these changes. The two scenarios presented in part II look instead 25 years into the future. First 'Open market' will be presented and after that 'Sustainable rurality'. Both scenarios are of the prospective policy type, assuming specific policy changes and exploring the territorial and other impacts of these changes. By doing this they may provide important information for decision-makers.

The rationale behind the presentation of 'Open Market' and 'Sustainable Rurality' is that both scenarios explore two alternative policy options which play an important role in discussions among policy-makers and scientists about the CAP and RDP reforms. Both policy options imply a transition of the agricultural sector from a highly protected and heavily subsidized sector into a liberalized or sustainable sector.[31] The scenarios represent two different 'schools' in thinking about EU Policies: the 'liberalization model' versus the 'European model'.

In order to present the policy changes and their expected impacts in a clear way, both scenarios assume the same trends regarding some contextual factors.[32] Regarding *global competition* and the outcomes of the *WTO negotiations* it is assumed that the American and European trade blocks are both willing to liberalize the world economy (Van Egmond et al., 2005). Most developing countries are positive about liberalization as well, in particular as far as agricultural products are concerned. WTO agreements are made on building more open and competitive global markets and also on *the possibility* to implement criteria for food safety, animal welfare and environmental protection ('non-tradables').

In both scenarios it is assumed that *average temperatures* in Europe will rise by one degree Celsius until 2030. This projection is the average of the IPCC scenarios (IPCC, 2001). It is expected that global warming has noticeable impacts on the conditions for agricultural production in the scenario period: more droughts and water shortages in southern Europe, more flooding in areas along great rivers, and more summer and winter storms. The mid latitudes and northern Europe can, however, profit from the temperature rise and the growing seasons are lengthened.

EU-enlargements are assumed to be primarily driven by economic reasons (market size, competition) and political reasons (safety, stability) (De Mooij & Tang, 2003). In both scenarios Bulgaria and Romania enter the EU in 2007. The EFTA countries Iceland, Norway, and Switzerland join in 2015. And after a more or less successful transition, the Balkans, Turkey and the Ukraine enter the EU in 2025. This latest enlargement implies a large extension of agricultural land and rural areas, most of which, however, don't perform economically well. Significant efforts are assumed to prepare these candidate countries for their entry. Special trade relations are settled with Russia and the African Mediterranean countries.

[31] A transition is a structural change of a sector or society as a whole, involving various mutually related developments on different aggregation levels and taking a time span of at least one generation (Rotmans et al, 2003).

[32] A sensitivity analysis could be carried out in order to explore the impacts of the policy changes under alternative assumptions about these trends.

In both scenarios *welfare* is assumed to increase on the global as well as on the European level. The breakthrough of the 'knowledge economy' causes an increasing consumption, not only of (agricultural and other) products and services but also of (landscape and other) experiences (Klijn, 2005). Consumption patterns are, however, hardly predictable because they depend to a large extent on new trends and fashions. Therefore the first scenario assumes materialistic, diverse, and irregular consumption patterns and the second one in-materialistic, less diverse and more regular patterns.

Concerning *demography* it is assumed that after a decreasing rise of the total population of Europe there is a fall after 2020. This is caused by a downward trajectory of fertility rates and a further rise of life expectancy. The proportion of Europeans above the age of 65 increases significantly. The age at which full retirement starts rises above 70. The ageing of the population influences settlement and consumption patterns. More wealthy people settle in rural areas and spend a large part of their incomes on housing in a green environment and on travelling.

Finally, it is assumed that the EU will take the *Lisbon Strategy* seriously in a context of sustained discrepancies between its own economic performance and that of other world economies such as those of the US, China, and India. The implementation of the strategy differs, however, in both scenarios. The first being focused on economic welfare for Europe in general and the second on the territorial potentials of the various European regions, in line with the conclusions of the Rotterdam Conference of Ministers responsible for territorial cohesion (November 2004).

8.2.1 Scenario 'Open market'

8.2.1.1 Scenario hypotheses

In this scenario, market forces play an important part in the evolution of rural areas, in particular in the agricultural sector. This obviously results from the outcomes of the WTO negotiations (liberalisation of international markets), but is also exacerbated by a deliberate EU-policy aiming at reducing its support to the agricultural sector and to rural development in general, with the exception of fields of activity which contribute to the improvement of competitiveness and growth, such as R&D and technological development. The breakthrough of the 'knowledge economy' on the global scale implies that the European agricultural sector has to cope with the introduction of one product innovation after the other on the international markets, e.g. genetically modified raw materials and food products (Dammers et al., 2003). This is a reason to significantly enhance investments in R&D. Environmental and food safety criteria are only implemented to the extent that they stimulate the competitiveness of the agricultural sector and that this can be done in a cost-effective way. Ecological sustainability is not denied but in cases of conflict with economic growth, it is only implemented at a low pace. Rural development assistance is considered to support agriculture and tourism as economic sectors.

8.2.1.2 Driving forces

Driving forces leading to an open market for *agricultural products* are:

- *WTO negotiations,* aiming at the removal of market distortions caused by import tariffs, export subsidies, market price support, and income support.
- *EU enlargement*, leading to a growing internal market for agricultural products but also to increased competition among farmers in Europe.

- Investments in the *Trans European Network*, improving the mobility and thereby the competition between farmers inside and outside the EU.
- *Technological innovations* in the agricultural sector, strengthening the market position of competing farmers.

Main factors behind increasing commodification of and competition between *rural areas* are:
- With the rise of the '*experience economy'* (going hand in hand with the breakthrough of the 'knowledge economy') consumers are more willing to pay for experiences related to rural areas.
- The increasing amount of *leisure* further stimulates this tendency to 'consume' rural areas (country weekends, vacations).
- The significant increase in *mobility*, caused by the investments in TEN-T and the increasing car-ownership (especially in the CEECs), has the same impact.

Key factors stimulating the liberalisation of the *CAP and related EU policies* are:
- The fact that the CAP is still a very costly endeavour – 45% of the EU budget flows to the CAP.
- The incidental but very expensive and drastic measures to combat *animal diseases,* like BSE and FMD.
- The *WTO negotiations*, putting significant pressure on the EU to reduce import tariffs and export subsidies as well as market price support and income support.

8.2.1.3 Contextual elements of the transition to an open market

By 2006 the EU was for the fifth year confronted with a low economic growth rate. The midterm assessment of the Lisbon Strategy had at the end of 2004 revealed that the targets of European competitiveness could not be reached without a serious reconsideration of the efficiency of EU policies, following in that some conclusions of the Sapir Report published in 2003. The increase of the unemployment rate resulting from the progress of globalisation and in particular from the acceleration of enterprise relocation towards low-wage countries outside Europe was a determining factor for the reconsideration of all EU policies as to their economic efficiency.

A tense debate took place at EU level and within the Member States, in which roughly speaking two policy coalitions were involved. One coalition consisted of those members of the EC and the EP, Member States, and business groups wishing to achieve the Lisbon Strategy by the 'liberalization model'. According to this model agriculture should liberalize and rural areas should valorise their 'territorial capital' in order to enhance their competitiveness and economic welfare in general. Another coalition consisted of those members of the EC and the EP, Member States, environmental and third world groups wishing to achieve the Lisbon Strategy by the 'European model'. According to this model agriculture and rural areas should develop in a sustainable way along the lines of the Göteborg Strategy formulated in 2001.

After several years of debate the coalition promoting the 'liberalization model' proved to be most influential. At the end of 2008, a decision was made on the EU level that, after the reforms of *Agenda 2000* (1999) and the proposal of the EC in 2004, the CAP and RDP would be reformed in a different direction. Import tariffs and export subsidies as well as market price support and income support would be cut down. Agriculture would be treated as any other economic sector. Because of the urgency of the Lisbon Strategy the reforms would be implemented in a short period. The same decision was made regarding the Structural Funds.

The 'liberalization coalition' was supported by the fact that during the WTO negotiations the US, major developing countries like India and China, and the Cairns Group of agricultural exporters put the EU under pressure to liberalize its markets for agricultural products (Rollo, 2003). The coalition used the pressure from these actors as an argument to overcome resistance by opponents in Europe. Besides, more and more members of the EC and EP and Member States became convinced that the CAP was too much a burden for the EU budget. The burden would even become heavier if it wasn't reformed prior to further enlargements of the EU, especially the enlargement with the Ukraine and Turkey. Furthermore, the agrarian lobby became aware that the sector can only survive in a globalizing economy if it becomes more competitive and demand oriented.

8.2.1.4 The open market strategy

The reforms of the CAP, Rural Development Policy, and the Structural Funds in the 1992-2005 period were only limited to some adaptations of existing policy measures, like a reduction of market price support (compensated by an increase in income support), or the introduction of new policy measures, like production quotas and set-aside measures. It was decided, however, that in the 2007-2020 period the policy objectives as well as the policy measures should be rapidly and radically changed (Griffiths, 2002). In little more than 10 years agriculture was transformed from a highly protected and heavily subsidized sector into an open and competitive (economic!) sector. Liberalisation, deregulation, and freedom to innovate played an important role in this transition process.

The main objectives of the reforms were to reduce the 'excessive' transfers from tax payers and consumers to agriculture, to stimulate the application of production factors (land, labour, and capital) where they are most productive, to make the agricultural sector more competitive on the world market and to reduce overproduction and other market distortions (Kol, 2002). Criteria related to food safety, animal welfare, and environmental protection would only be implemented to the extent that they didn't hinder economic competitiveness or that they were forced by consumer concerns. Three reforms can be considered as milestones in the liberalization process.

Reform of 2010
The midterm review of 2010 marked the beginning of the liberalization process. In that year it was decided to gradually reduce tariffs and export subsidies to 75% compared to 2005. Despite the decision of the heads of state in 2002 to freeze the budget for Pillar 1 until 2013, it was now also decided to reduce the budget to € 30 billion (80% of the budget for 2005).[33] Moreover, the budget had to be divided among a greater number of farmers because Bulgaria and Romania had entered the EU in 2007. It was also decided to further shift direct payments from market support to income support. The European Food Authority was established to control food safety (Massink & Meester, 2002). A guideline obliged farmers to insurance themselves against animal diseases. The EU would now longer pay in cases of calamities. Environmental measures were reduced to a minimal level.

The budget for Pillar 2 (rural development) was reduced to € 4 billion in 2013 (90% of the budget for 2005). At the same time priorities changed. Most of the budget was spent on the stimulation of the wider rural economy (axis 3), especially on the diversification of economic activities and the improvement of infrastructure (mainly roads and digital networks) (AIRDR, 2004). The entrepreneurial capacity and local initiative were mobilized. By organising competitions for project ideas and providing training programmes innovative projects were triggered and facilitated. Commodification and marketing of the natural and

[33] All amounts are expressed in constant 1999 prices.

cultural heritage was considered a key issue. Farmers could play an important role in this. A significant part of the budget was spent on stimulating the competitiveness of the agricultural sector (axis 1). These payments worked as accompanying measures to the reduced Pillar 1 payments. Payments on land management / environment (axis 2) were significantly reduced because they were from now on considered the responsibility of national and regional governments. The same priorities were set for LEADER.

The objectives of the Structural Funds related to rural areas became more concentrated on the new Member States. This is true for Objective 1 (promoting the development of and structural adjustment of areas most lagging behind) as well as Objective 2 (supporting the economic and social conversion of areas facing structural difficulties). Like Rural Development Policy triggering innovative projects played an important role. The payments for rural areas (funded by EAGGF) were reduced to € 2.5 billion (90% of the budget for 2005).

Reform of 2014
Another significant step in the liberalization process was made in 2014. This reform marked the beginning of a period in which liberalization was accelerated. From 2014 until 2017 tariffs and export subsidies were further reduced to 30% compared to 2005. The budget for Pillar 1 was further reduced to € 15 billion in 2017 (40% of the budget compared to 2005). Market price support was even abolished; only income support remained. Measures to stimulate food quality and animal welfare were considered to be the responsibility of farmers, retailers and consumers. Regulations in the field of animal welfare were abandoned for the same reason.

The budget for Pillar 2 measures was further reduced to € 2.5 billion in 2017 (50% of the budget for 2005). In order to stimulate the general welfare of Europe priority was given to the economically most successful rural areas. Wider rural economy (axis 3) became further concentrated on tangible factors like the diversification of economic activities and the improvement of the physical and digital infrastructure (roads, ICT). Competitiveness of agriculture (axis 1) was intended to stimulate technological and other innovations in agricultural productions. Land management / environment (axis 2) was further reduced.

From now on the Structural Funds were first of all applied to the economically most successful rural areas *in the new Member States* since the EU was convinced that the institutional capacity of the less successful areas was too weak to absorb EU funds successfully (IRS, 2004). Like Pillar 2 of the CAP the budget for the Structural Funds applied to rural areas was further reduced to € 1.5 billion (50% of the budget for 2005).

Reform of 2017
The liberalization process was completed by the reform of 2017. At the end of the programme period 2014-2020 the import tariffs and export subsidies were almost completely abolished. Tariffs of 3 or 4 % were considered appropriate for a normal economic sector (Kol, 2002). Export subsidies were reduced to 5% compared to those in 2005. The Pillar 1 payments were reduced now to € 4 billion (10% of the budget for 2005). Pillar 2 measures were further reduced to € 1 billion (20% of the budget for 2005). Stimulation of the wider economy of rural areas was considered first of all the responsibility of the national governments.

The Structural Funds were almost completely reduced to pre-accession aid. From now on they were only applied to stimulate the economically most successful rural areas in the *candidate countries.* They should stimulate these countries to prepare themselves for their entry into the EU. Because of long negotiation processes, however, the Balkan countries, Turkey, and the Ukraine didn't enter the EU before 2025. The Structural Funds applied to rural areas were further reduced to € 0.5 billion (20% of the budget for 2005).

8.2.1.5 Impacts of the strategy

The open market strategy generated large *macro-economic impacts*. At the end of the transition period production factors (land, labour, and capital) were to a great extent applied where they were most productive in Europe. Gylfason (1995) calculated that this would generate 3 percent additional economic growth in the EU-12. In scenario 'Open market' this impact could be comparable. The enormous transfers from consumers / taxpayers to agriculture were almost completely stopped. In 1999 these transfers amounted €120 billion (Kol, 2002). In the scenario the reduction of transfers was even larger because the new Member States abolished their protective measures as well.

The abolishment of import tariffs and export subsidies generated large impacts for the developing countries. Swinbank et al. (1999) calculated that developing countries could generate € 20 billion per year extra welfare if the EU abolished its protective measures, three times the amount of the development aid they receive per year. In the scenario the impact was even larger because the New Member States abolished their import tariffs as well. Countries that used to enjoy preferential assess to protected Western markets, however, suffered from the opening up of the borders (Massink & Meester, 2002).

- **Territorial and other impacts**

Macro level
Regarding *agricultural production* the vicious circle set in motion in the last decades of the 20th century was further intensified by the open market strategy. This causes substantial structural changes in the direction of further intensification and scaling-up. New technologies (machines), chemicals (fertilizers, herbicides), and (genetically modified) crops were frequently introduced. Land from farms who didn't survive was bought on a large scale. This caused a fall in the number of farms and a substantial rise in the average farm-size. In the 2005 – 2030 period the UAA was almost quadrupled from 20 to 80 ha. The SGM rose even more than in the 1990s.

The intensification and scaling-up of production were most dominant in *large-scale arable and dairy farming*. Large-scale farming decreased in Northwest and Southern Europe but increased in most of the CEECs and Turkey where land-prices were much lower. *Intensive cattle farming and horticulture*, however, profited from the highly developed infrastructure in urbanized regions of Northwest Europe. Further scaling-up and clustering of farms and greenhouses reduced production costs (energy, waste, and transport). This enabled them to produce more efficiently for the world market. In the metropolitan areas, particularly in the Pentagon, possibilities for agrarian *nature and landscape management* were limited because RDP was almost completely abolished. Besides, increased competition made it difficult for farmers to combine these activities with efficient agricultural production. *Experience farming* didn't break through because only a small number of farmers were able to do this in a profitable way. In the peripheral areas of the CEECS and South and North Europe *subsistence farming* played a significantly more important role.

The trends of agriculture developing in the most fertile areas and giving up less-favoured areas and areas in urbanised regions, which was already dominant in the 1990s, was significantly intensified during the scenario period. The surface of agricultural land decreased in the EU-15 due to higher efficiency of productive areas and to significant rises in land-prices in urbanized regions. Subsequently, former agricultural surfaces were naturally replaced by woodland. In the countries like Poland, Romania, Turkey and the Ukraine the surface, however, increased because land-prices were low and many natural areas were cultivated. The production of *major crops* continued growing, especially cereals,

fodder crops and energetic crops. The demand for renewable energy (biomass and bio-fuels) increased because of the rapid increase of world oil prices. *Surfaces still in grass* decreased because large parts were changed into arable land. *Permanent crops* decreased rapidly. Orchard surfaces for instance further decreased in northern Europe but increased in Southern Europe and in Turkey because of the introduction of better irrigation techniques and genetically modified trees. These trends caused a reduction of *territorial cohesion.* The discipline of the market led to a further dualisation generating outspoken 'winners' and 'losers' among farmers and rural areas. This was only limited to some extent by the fact that CAP measures benefiting richer areas most were almost completely abolished.

Rural areas in urbanized regions, particularly in the Pentagon and in the metropolitan areas in the CEECs and Southern Europe, benefited economically from the further growth of residential areas, industrial estates etc. At the same time they were affected by increasing population and urbanisation causing more urban sprawl. *Rural areas with a variety of activities* also developed further in the Pentagon and in other metropolitan areas in Europe. Many of these areas, which were successful in selling luxury homes for retired people or building invented traditions, like 'shopping castles', flourished economically. In *rural areas attractive for tourism* mass-tourism became booming business. Especially at the Mediterranean and Black Sea coasts and in the Alps and Carpathian mountains local recourses were commodified and marketed successfully. *Rural areas where agriculture dominates* developed in different directions. Areas with fertile land in the Basin of Paris and in large parts of Poland and the Ukraine became economically more successful because of the (further) industrialization of production. In these areas food production competed with the production of energy crops. In Southern Europe, however, areas with less favourable conditions were confronted with the abandonment of large surfaces of agricultural land, causing an intensified downward spiral ('desertification') (Clout, 1998). *Rural areas with low accessibility* were also facing a genitive spiral. Regional actors in the North of the Nordic countries and in the East of the CEECs were not very successful in commodifying their local resources. As a result, many young people out-migrated, causing an ageing of the remaining population. All these trends caused a further reduction of territorial cohesion on the macro level (AIRDR, 2004).

Natural areas were seriously affected. Particularly in the CEECs and Turkey many natural areas were cultivated. The EU measures for afforestation were almost completely abandoned. These trends were only compensated to some extent by some regional governments and NGOs investing in nature development and by the abandonment of agricultural land, which led in some areas to natural afforestation, thus improving the potential for biomass energy production. In the open fields (e.g. in the Basin of Paris) and in the polders and deltas (e.g. in the Netherlands) scaling-up of production led to the removal of many *landscape elements*. In Western France and on the British islands many bocage landscapes were changed into open fields. The *environment* was also affected. Crop production was intensified by the increased use of nutrients, pesticides, and irrigation. This tendency was only limited to some extent by the introduction of genetically modified crops and new production techniques. The intensification of livestock-farming caused increased production of manure and emissions of ammonium. This was further enhanced by the abolishment of the cross-compliance principle. The abandonment of farmland in the Alps and the Carpathian Mountains, however, led to lower risks of avalanches, landslips, and mud-floods because of the growth of natural vegetation.

Meso level

On the national level the scenario implies also a trend towards less territorial cohesion. The trend even accelerated during the scenario period. This is true for agriculture as well as for rural areas. In the urbanised regions of the Member States, parts of land, among which high quality arable land, was given up to the ongoing process of urbanisation. But the remaining agriculture was highly profitable since intensive cattle farming and horticulture both

increased their production for the world market. In the most productive rural areas agriculture became also more profitable but in rural areas with less favourable production conditions agriculture increasingly marginalized.

The socio-economic viability of *rural areas in urbanized regions* increased during the scenario period. As part of the urbanisation process they became more and more urbanized themselves. The same is to some extend true for several *rural areas attractive for tourism* and *rural areas with a variety of activities.* The first mentioned became more urbanised by developing an extended tourist and commercial infrastructure and the last mentioned by building homes for retired people and developing service industries. At the same time the socio-economic viability of some *rural areas where agriculture dominates* and *rural areas with low accessibility* was rapidly going down. Marginalising agriculture and decreasing employment caused increased migration of younger people to urbanised areas.

Micro level
In many regions of Europe territorial cohesion was enhanced. Rural and urban areas became more and more economically, socially and culturally interlinked with one another. In rural areas in urbanized regions this was caused by the ongoing process of physical and mental (sub)urbanisation. The same is true – although to a lesser extend – for rural areas with a variety of activities because of the homes for retired people which were built and the service industries which were developed. The towns in these areas functioned more and more as regional economic, social and cultural centres. In other regions, however, territorial cohesion was going down. In rural areas in which agriculture had a weak production structure the negative spiral caused larger economic, social and cultural differences between urban and rural people.

8.2.1.6 Final territorial image

In 2030, a decade after the transition of the agricultural sector the image of the EU is quite different from that in 2005. The Union has been substantially enlarged. Its borders have been shifted a long way to the East, Russia, Syria, and Iran now being the new neighbour states. The entry of Bulgaria and Romania in 2007 and especially the entry of Ukraine and Turkey in 2025 have significantly extended the surface of agricultural land. Agriculture is characterized by a high measure of dualisation. Large-scale arable and dairy farming decreased in Northwest Europe but increased more in the CEECs and Turkey because agricultural conditions in terms of land-prices are much better there. Intensification and scaling-up of production has led to large-scale dairy and arable farms in these countries. Intensive cattle farming and horticulture are concentrated in Northwest Europe because the highly urbanized character of this region and the highly developed infrastructure enable them to efficiently produce for the world market. Experience farming occurs only on a small scale in urbanized regions. And nature and landscape management by farmers has almost completely disappeared.

Rural areas are characterized by a very high measure of dualisation as well. Most of the rural areas in urbanized regions have become urbanized themselves. This means that many rural areas where agriculture dominates have changed into rural areas in urbanized regions. Rural areas attractive for tourism have extended significantly. The enlargement of the EU has created many opportunities to exploit new coastal areas, like the Black Sea coast, and mountain areas, like the Carpathian and Balkan mountains, for mass-tourism. The intense dualisation of agriculture and rural areas has become most clearly visible in rural areas where agriculture dominates. Most of these areas are dominated by large-scale industrialised farms. These areas are densely populated and socio-economically viable. Other areas, however, are characterized now by large surfaces of abandoned farmland, many of which are now eroded or naturally forested. The same is true for rural areas with low accessibility, like the Northern parts of the Nordic countries. Socioeconomic viability and

population density in these areas are very low. In the CEECs many natural areas have been changed into farmland.

8.2.1.7 Summary

After being confronted for several years with a low economic growth rate the EU decided that the Lisbon Strategy could not be achieved without a serious reconsideration of the efficiency of EU policies. In a tense debate the policy-coalition promoting the open market strategy proved to be most influential. This coalition was supported by the WTO negotiations, the fact that the CAP was felt too much a burden for the EU budget, and the awareness of the agrarian lobby that the sector should become more competitive on the world market.

The open market strategy transformed the agricultural sector rapidly into an open and competitive economic sector. This happened in three stages: a preparation stage, an acceleration stage, and a realisation stage. During the implementation Pillar 1 and Pillar 2 measures were first gradually and then more rapidly reduced and finally almost completely abolished. In order to implement the process successfully and to provide farmers and rural areas the opportunity to adapt to the free market the implementation was stretched-out over a period of more than a decade.

The liberalization of agriculture had substantial impacts on general welfare. It stopped the large transfers from consumers/taxpayers to the agricultural sector and generated more economic growth in Europe and in the developing countries. With regard to agriculture and rural areas, however, territorial cohesion decreased substantially, particularly on the macro and meso level. The average farm-size rose substantially. Large-scale arable and dairy farming decreased in Northwest Europe but increased more in the CEECs and Turkey. Like intensive cattle farming and horticulture they were very successful on the world market. Experience farming and agricultural nature and landscape management, however, hardly survived. Rural areas in urbanized regions, which were attractive for tourism or with a variety of activities were very successful in terms of socioeconomic viability and also became more populated, but many (less successful) rural areas in which agriculture dominated or with low accessibility were faced with a downward spiral. The intensification and scaling-up of agricultural production and the booming of mass-tourism severely damaged nature, landscapes and the environment.

8.2.2 Scenario 'Sustainable rurality'

8.2.2.1 Scenario hypotheses

In order to stimulate the transformation of the enlarged internal market into a sustainable market, competition as well as environmental conditions and territorial cohesion are stimulated. The EU gives priority to a further integration of agricultural, regional, and other sectoral policies. Spatial development policies play an important role as a reference for the integration and coordination policies in rural areas. This takes the shape of a sophisticated system of cooperation between the different sectors. The CAP and RDP are reformed in an economically, socially and ecologically sustainable way. Criteria for food safety, animal welfare and environmental protection are given priority even when they conflict with economic growth. The reason for this is that the EU considers ecological and social sustainability as preconditions for economic sustainability. In the same way, rural development is considered to support the economic competitiveness of rural areas but also job creation, social cohesion in rural areas and the quality of the environment. To this end, the economic diversification of rural areas is actively promoted. This implies, however, that some protectionist elements of the CAP are maintained.

8.2.2.2 Driving forces

Driving forces behind the transition to a sustainable *agriculture* are:
- *WTO negotiations,* aiming at the reduction of market distortions caused by import tariffs, export subsidies etc. and at the same time stimulating the implementation of 'non-tradables'.
- *Consumers*, becoming more capable of steering production in the direction of organic and regional products by their spending behaviour and becoming more aware of that.
- *Technological innovations*, not only leading to higher agricultural production but also to reduced pollution and reduced water-use for irrigation.
- Rising *energy prices*, stimulating the building of (sustainable) agro-production parks and leading to a growing demand for biomass.

Important factors behind the development towards sustainable *rural areas* are:
- Because of the rise of the *experience economy* consumers / tax payers are more willing to pay for a higher quality of landscapes and the environment in general.
- *Migration* of urbanites and retirees to rural areas has an impact on the socio-economic viability of these areas but also on the demands for the quality of the landscape and the environment.
- This tendency is further stimulated by the increasing amount of *leisure* providing people more opportunities to spend time and money in attractive rural areas.

Key factors stimulating the sustainable character of the *CAP and related EU policies* are:
- *WTO negotiations*. The US and other countries put significant pressure on the EU to reduce protective measures.
- *EU Enlargement.* The accession of the CEECs is a stimulus to increase the budget for Pillar 2 in order to protect the natural and cultural heritage in the rural areas in these countries and to improve their socio-economic viability.
- *Interest groups*. Environmental groups, third world groups and other NGOs become more effective in lobbying for policy changes in the direction of sustainability.
- *Animal diseases.* Epidemic diseases like BSE and FMD contribute to the effectiveness of the lobbying activities of interest groups.

8.2.2.3 Contextual elements of the transition to sustainable rurality

Like in the 'Open market' scenario, the EU was by 2006 for the fifth year confronted with a low economic growth rate. The midterm assessment of the Lisbon Strategy in 2004 revealed that the targets of European competitiveness could not be reached without a serious reconsideration of the efficiency of all EU policies. The increase of unemployment resulting from further globalisation and in particular from enterprise relocation towards low-wage countries outside Europe was a determining factor for the reconsideration.

Like in 'Open market' a tense debate took place at EU level and within the Member States, in which two policy coalitions dominated. One coalition promoted the 'liberalization model' and the other one the 'European model'. Unlike the first scenario the coalition promoting the 'European model' now proved to be most influential. At the end of 2008, a decision was made on the EU level that the reforms of *Agenda 2000* (1999) and the proposal of the EC in 2004 were considered as first steps in the direction of a more fundamental reform of the CAP and RDP in a sustainable direction. Social and ecological sustainability were considered as preconditions for economic sustainability. More market principles would be introduced in the agricultural sector but in a framework of regulations for environmental protection and social security. In order to successfully implement the reform and to provide agriculture and rural areas the opportunity to adapt to the new conditions this would happen in a gradual way. The same decision was made regarding the Structural Funds.

The 'sustainability coalition' was supported by the growing awareness of the environment. Incidents like more frequent droughts and heat waves in Southern Europe, excessive rainfalls and floods in Northwestern and Eastern Europe, and retreating glaciers in the mountain areas convinced more and more people that the climate was changing. The incidents 'proved' that the environment should be considered as a precondition for economic and other human activities. New outbreaks of animal diseases like BSE and MFD gave further impulses to this vision. Besides, after the enlargement of 2004 the EU faced a great challenge regarding territorial cohesion. At the time of their entry the new Member States were at only 40% of the average GDP of the EU-15 and Bulgaria and Romania were even at less than 30%. Furthermore, in the subsequent WTO negotiations the EU was put under increasing pressure by the US, the Cairns Group of agricultural exporters and major developing countries like China and India to liberalize its markets for agricultural products (Rollo, 2003). At the same time agreements were made to give more weight to 'non-tradables'.

8.2.2.4 The sustainable rurality strategy

The reforms of the CAP, RDP, and the Structural Funds in the 1992-2005 period were limited to some adaptations of existing policy measures, like a reduction of market price support and an increase of income support, or the introduction of new policy measures, like production quotas and set-aside measures. It was decided, however, that in the years to come not only the policy measures but also the policy objectives should be fundamentally changed. In subsequent steps the agricultural sector would be transformed from a largely protected sector putting nature, landscapes and the environment under high pressure into a sustainable economic sector. Liberalisation within a framework of regulations ('licence to produce') and freedom to innovate within certain limits played an important role in this transition process (Dammers et al., 2003).

The main objectives of the reforms were to make agriculture and rural areas sustainable, to improve the quality and quantity of the natural and historical heritage, to make the agricultural sector more competitive on the world market, and to reduce the huge transfers from consumers / tax payers to agriculture. In cases of conflict between economic growth and the implementation of criteria related to food safety, animal welfare, and the

environment, priority would be given to these criteria. In order to achieve the 'transition towards sustainability' successfully and to provide farmers and rural areas the opportunity to adapt to the new conditions the transition was implemented in a gradual way. The following reforms were milestones in the transition process.

Reform of 2010
The aim of the reform of 2008 was to prepare the transition process. In this phase some policy changes were implemented in the direction of liberalization within the framework of regulations. Import tariffs and export subsidies were reduced to 90% of their original value.[34] Budgets were further transferred from Pillar 1 to Pillar 2 (modulation). The budget for Pillar 1 (commodity market support and direct payments) didn't change in absolute terms because the heads of state had decided in 2002 to freeze the budget at the level of € 37.5 billion until 2013.[35] The reform implied, however, a relative reduction of the budget because a consequence of the entry of Bulgaria and Romania in 2007 was that the budget had to be divided among a greater number of farmers. Besides, it was decided to further shift the direct payments from market support to income support. Regulations in the field of environment, animal welfare, animal health, and food quality (cross-compliance) now became compulsory for all Member States.

The budget for Pillar 2 (rural development) was gradually increased to € 7 billion (150% of the budget for 2005). At the same time priorities changed. Most of the budget was spent on the stimulation of the wider rural economy (axis 3), especially on the diversification of economic activities by stimulating various non-farming activities, e.g. in the tourist and service sectors. Co-ordination between public authorities was stimulated by subsidizing rural development perspectives. Cooperation between public authorities, NGOs, and business became conditional for payments. Investments were made in the tangible (roads, ICT) as well as the intangible infrastructure (institutional capacity), particularly in the CEECs. A significant part of the budget was spent on land management / environment (axis 2), which was concentrated on *maintaining* nature and landscape and preventing the abandonment of farmland. Competitiveness of agriculture (axis 1) was concentrated on increasing competitiveness of the sector, *respecting* criteria for animal welfare, environmental protection etc.

The budget for the Structural Funds related to rural areas (EAGGF) was increased to € 4.5 billion (150% of the budget for 2005). The priority objectives were concentrated on the *improvement* of economic, social and territorial cohesion, especially in the new Member States. This is true for Objective 1 (promoting the development of and structural adjustment of areas most lagging behind) as well as Objective 2 (supporting the economic and social conversion of areas facing structural difficulties). Regional Policy, like Rural Development Policy, was also aimed at stimulating the co-ordination and co-operation among actors.

Reform of 2014
The reform of 2014 marked the beginning of a period in which the 'transition towards sustainability' was accelerated. Import tariffs and export subsidies were further reduced to 60% of their 2004 value. For the first time in history it was decided to reduce the budget of the CAP not only in relative but also in absolute terms. Moreover, budgets were further transferred from Pillar 1 to Pillar 2. In the period until 2023 the budget for Pillar 1 (commodity market support and direct payments) was gradually reduced to € 22.5 billion (60% of the budget for 2005). Market support was almost completely abolished in this period; only income support remained. Criteria for environmental protection, animal health, animal welfare, and food quality were increased.

[34] All percentages presented in this section are relative to the budget level in 2004.
[35] All amounts are expressed in constant 1999 prices.

The budget for Pillar 2 (now defined 'integrated rural development') was now increased to € 11.5 billion (250% of the budget for 2005). A sophisticated system of co-ordination and co-operation on the regional level was introduced. This system consisted of integrated rural development perspectives, made by regional innovation networks, facilitated by regional knowledge centres, and implemented with the aid of regional development funds (Smeets & Blom, 2002). Wider rural economy (axis 3) was concentrated on further diversification of economic activities, e.g. by stimulating high-tech and foot-loose small and medium-sized enterprises (SMEs). Land management / environment (axis 2) was concentrated on *improving* nature and landscape and preventing the abandonment of farmland. Competitiveness of agriculture (axis 1) was not only concentrated on increasing competitiveness of agriculture but also on respecting *higher* criteria for animal welfare, environmental protection etc.

Regional Policy was gradually integrated with Rural Development Policy. The budgets for the Structural Funds related to rural areas were increased to € 7.5 billion (250% of the budget for 2005) and added to the budget for Pillar 2 (total amount: € 19 billion per year). The payments aimed at *further improving* economic, social and territorial cohesion in the new Member States. Payments were first of all applied in rural areas with a high growth potential.

Reform of 2024
The 'transition towards sustainability' was completed by the reform of 2024. In the period until 2030 import tariffs and export subsidies were further reduced to 30% of their 200µ4 value. Pillar 1 payments (commodity market support and direct payments) were reduced to € 11.5 billion (30% of the budget for 2005). Further reduction was avoided in order to be able to cope with the irregularities characteristic for the agricultural sector (Griffiths, 2002). This was considered necessary because of the climate change and its impacts on weather conditions (droughts, floods). A desire for a certain level of protectionism was, however, also at play. Concerning the direct payments income support was maintained for farmers in less favourable areas in order to guarantee a level playing field and to prevent the abandonment of farmland in these areas.

Budgets for Rural Development Policy (Pillar 2) and Regional Policy were further increased to a total amount of € 23 billion (300% of the budgets for 2005). The system of co-ordination and co-operation on the regional level was further improved by stimulating the ambitions during the making and implementing of integrated rural development schemes. Mutually learning by working visits and round-table meetings and facilitating by so-called flying brigades (teams helping to tackle bottlenecks in the process) played an important role (Dammers et al., 2004). The priorities of the three thematic axes of RDP were maintained.

8.2.2.5 Impacts of the strategy

The sustainable rurality strategy generated large *macro-economic impacts* but not as large as the open market strategy. The reason for this is that the transfers from consumers / taxpayers to agriculture were only reduced to 30% compared to 2005 in this scenario instead of 10% in the first scenario. If the sustainable rurality strategy was implemented in 2005 at once, transfers of approximately € 85 billion would have been avoided.[36] In the scenario the reduction is, however, larger because the new Member States abolished their protective measures as well. The welfare impacts for Europe in the scenario are less than the 3 percent additional economic growth (compare Gylfason, 1995). But again there is a welfare impact now in the new Member States as well.

[36] All amounts are expressed in constant 1999 prices.

As has been remarked before, developing countries could generate € 20 billion extra welfare per year if the EU abolished its protective measures completely (Swinbank et al., 1999). In the scenario the impact is on the one hand limited because the import tariffs and the export subsidies were 'only' reduced to a level of 30% compared to 2005. On the other hand the impact is enhanced because the EU counts much more Member States at the end of the scenario period. According to a rough estimation, developing countries could gain approximately € 15 billion per year. Developing countries that used to enjoy preferential assess to protected Western markets would suffer less than in the first scenario.

Macro level
The vicious circle, set in motion in the last decades of the 20th century was intensified but not so much as by the open market strategy. The reason for this is that agriculture was not completely left to the mercy of the world market. Nevertheless, the number of farms decreased and the average farm-size increased gradually but certainly. This is especially true in the CEECs and later in Turkey. Although small farms no longer dominated in these countries, many of them survived, e.g. by alternative income resources. In the period 2000 – 2030, the UAA in the EU-15 was almost tripled from 20 to 60 ha. The SGM increased more than in the 1990s.

The concentration and scaling-up of *large-scale agriculture* was moderated. Arable and dairy farming increased most in rural areas with low land-prices in Poland, the Baltic States, and the Ukraine. In Northwestern and Southern Europe both types of farming decreased. Many *intensive cattle farms and horticulture* settled on agro-production parks, mainly in the Pentagon. Scaling-up and clustering reduced production costs and provided possibilities for recycling manure, waste etc. Regulations for animal welfare, however, limited further intensification. *Experience farming* broke through in the metropolitan areas inside and outside the Pentagon and in rural areas with small-scale landscapes in East and South Europe. Consumers' preferences for organic and regional products and for services provided by farmers (camp-sites, training facilities) increased. RDP facilitated farmers to professionalize themselves (Van Eck et al., 2002). The growing demand for cultural landscapes provided opportunities for agrarian *nature and landscape management*, particularly in small-scale landscapes. The increased and intensified programmes for rural development made *subsistence farming* more and more superficial in the peripheral regions of the CEECs.

The trend of agriculture developing in the most fertile areas and giving up less-favoured areas and areas in urbanised regions was first limited and later even reduced. The surface of agricultural land decreased to a certain extent in the EU-15 because in urbanized regions land-prices rose. In Eastern Europe and in Turkey the surface, however, increased because land-prices were low and 'waste land' was cultivated. The production of cereals, fodder crops, energy crops and other *major crops* increased moderately. New farming technologies and chemicals made increased production without excessive pollution possible. Moreover, several genetically modified energy crops were introduced. Large parts of the *surfaces still in grass* – but not as large as in the first scenario – were changed into arable land. Regarding *permanent crops,* orchard surfaces decreased in Northwestern and Eastern Europe. They increased, however, in Southern Europe and in Turkey because better irrigation techniques were introduced and orchards were cultivated for experience farming and landscape management. The trend of reduced *territorial cohesion* was first limited and later changed into a tendency of increased cohesion. The principle of liberalization within a framework of regulation was successful to a great extent, particularly the measures stimulating diversified farming.

Rural areas in urbanized regions in the Pentagon and even more those around the metropolitan areas outside the Pentagon benefited from the further growth of residential areas, cultural amenities etc. At the same time, they were affected by further population

and urbanisation. *Rural areas with a variety of activities* developed throughout Europe, particularly in Finland, Poland, the Czech Republic and Spain. Investments in the tangible infrastructure (including park-like environments) and intangible infrastructure made these areas attractive for knowledge intensive SMEs and wealthy urbanites (households with children as well as retirees). *Rural areas attractive for tourism* flourished without putting the environment under too much pressure. This was not only true for coastal and mountain areas but also for small scale landscapes, like the 'bocages' in France and the UK and the 'montados' in Spain and Portugal. *Rural areas where agriculture dominates* diversified. In the fertile areas of France, Germany, Poland and the Ukraine, agricultural production further modernized. In these areas food production increasingly competed with the production of energy crops. In Eastern and Southern Europe rural areas, stimulated by RDP and Regional Policy, became economically more diversified. Some *rural areas with low accessibility* were successful in commodifying and marketing local resources, particularly rural areas with large-scale natural landscapes in the North of the Nordic countries and the East of the CEECs. Luxurious forms of nature-tourism were developed together with the necessary tourist infrastructure. Other rural areas, however, continued to face a negative spiral because of their lack of institutional capacity. Like agriculture, the trend of reduced *territorial cohesion* was first limited and later changed into a tendency of increased cohesion. Only some rural areas with low accessibility lagged behind.

Natural areas increased in this scenario. Although nature in the CEECs and Turkey was changed into farmland this was more than compensated by afforestation and nature development on less productive and abandoned farmland in these countries. Increased agricultural productivity was combined with development of *landscape elements*. In the open fields, where intensification and scaling-up dominated, farmers were paid to develop large scale landscape elements. Agro-production parks, where intensive cattle farming and horticulture concentrated, were also embellished with landscape elements. Many bocages and other small-scale landscapes were restored. Increased agricultural productivity was also combined with reduced *environmental* pollution. The introduction of new techniques and chemicals and the increase of organic farming played an important role in the decreasing use of chemicals. The recycling of manure and waste in agro-production parks reduced pollution as well. Compulsory cross-compliance and subsequent enhancement of agri-environmental payments further stimulated this tendency. Afforestation and extensive farming on abandoned farmland in the Pyrenees, the Alps and the Carpathian Mountains reduced the risks of avalanches, landslips etc.

Meso level
On the national level the same tendency could be observed as on the macro level regarding territorial cohesion. In the urbanised regions of the Member States parts of land were given up to urbanisation but not so much as in the first scenario. The remaining agriculture continued to be profitable since intensive cattle farming and horticulture as well as experience farming gained market shares. In the most productive rural areas agriculture became more profitable because of further modernisation and the introduction of energy crops. In the most productive areas of the CEECs agriculture became even more profitable than ever before. In rural areas with less favourable production conditions marginalization was limited by diversification of activities.

The socio-economic viability of *rural areas in urbanized regions* increased but not so much as in 'Open market'. The attractive park-like environment in many of these rural areas attracted small-scale enterprises and urbanites. In many Member states *rural areas attractive for tourism*, *rural areas where agriculture dominates* and *rural areas with a variety of activities* also improved their socio-economic viability. This was stimulated by sustainable tourism, modernisation of agriculture, and diversification of economic activities respectively. Many *rural areas with low accessibility* improved their socio-economic viability

as well by stimulating luxurious forms of nature-tourism. Several rural areas with a weak institutional capacity, however, lagged behind.

Micro level
In many regions of Europe the same tendencies regarding territorial cohesion could be observed as on the macro and meso level. Rural and urban areas became more economically, socially and culturally interlinked with one another than in the first scenario. In rural areas in urbanized regions this was caused by the process of urbanisation. The same is true – although to a lesser extend – for rural areas with a variety of activities because of the homes for retired people which were built and the service industries which were developed. Only in some rural areas with low accessibility, particularly those which were not successful in mobilising enough institutional capacity, territorial cohesion continued to go down.

8.2.2.6 Final territorial image

In 2030, after the transition of the agricultural sector, the image of the EU is quite different from that in 2005. The EU has been substantially enlarged. Its borders have been shifted a long way to the East. The entry of Bulgaria, Romania in 2007 and especially the entry of the Ukraine and Turkey in 2025 have significantly extended the surface of agricultural land. Arable and dairy farming have increased in these countries because agricultural conditions in terms of land-prices and wages are better. In Northwestern and Southern Europe, however, both types of farming have decreased. Many large scale farms have developed here. Intensive cattle farming and horticulture are concentrated in agro-production parks in the Pentagon because the highly urbanized character of this region and the highly developed infrastructure enable them to efficiently produce for the world market. Experience farming takes place in urbanized regions and in small-scale landscapes. Nature and landscape management by farmers is also found in small-scale landscapes.

Many rural areas in urbanized regions have become urbanized themselves, but not so many as in the first scenario. Some rural areas where agriculture dominates have changed in their turn into rural areas in urbanized regions. Rural areas attractive for tourism have extended moderately. The enlargement of the EU has created new opportunities to develop tourism and outdoor recreation in coastal areas, like the Danube delta, but also in small-scale landscapes, like Bohemia. The dualisation of agriculture and rural areas has noticeably been reduced. Although the most fertile areas in Europe are dominated by large-scale dairy farming and to a lesser extent by arable farming, both farm types are not as dominant as in the first scenario. Abandoned farmland also occurs to a much lesser extent. Various rural areas with low accessibility, like the North of the Nordic countries and the East of Poland, are preserved for luxurious forms of nature-tourism. In the CEECs a limited surface of natural areas has been changed into farmland. This has been more than compensated by nature development in other areas.

8.2.2.7 Summary

After being confronted for several years with a low economic growth rate the EU decided that the Lisbon Strategy could not be realized without a serious reconsideration of the efficiency of EU policies. In a tense debate the policy-coalition promoting the sustainable rurality strategy appeared to be most influential. This coalition was supported by the growing awareness of the environment (which was in its turn stimulated by several incidents related to climate change), the fact that the EU after the enlargement of 2004 faced a great challenge regarding territorial cohesion, and the increasing pressure of the WTO to liberalize the markets for agricultural products.

The sustainable rurality strategy transformed the agricultural sector to a large extent into a sustainable economic sector. This happened in three stages: a preparation stage, an acceleration stage, and an implementation stage. During the implementation Pillar 1 measures (commodity market support and direct payments) were significantly reduced but at the same time Pillar 2 measures (now defined as 'integrated rural development') were strongly enhanced. In order to implement the transformation successfully and to provide farmers and rural areas the opportunity to adapt to the new conditions, implementation was stretched-out over a period of a generation.

The sustainable rurality strategy had large impacts on general welfare but not as large as the liberalization strategy. It reduced the large transfers from consumers/taxpayers to the agricultural sector and generated more economic growth in Europe and in the developing countries. Regarding agriculture and rural areas the same tendencies could be observed on the macro, meso and micro level. The trend of reduced territorial cohesion was first limited and later changed into a tendency towards increased cohesion. Many large-scale diary and arable farms moved to the CEECs and Turkey. Dairy farming and intensive cattle farming were successful on the world market. Experience farming and agricultural nature and landscape management were successful on regional markets. Arable farming, however, lost market shares. Rural areas in urbanized regions, which were attractive for tourism or in which agriculture dominated experienced increasing socioeconomic viability and further population growth. The same is true for many rural areas with a variety of activities and some rural areas with low accessibility. Only rural areas with low accessibility which were not able to mobilise enough institutional capacity lagged behind.

8.2.3 Main issues resulting from the scenarios

The open market strategy and the sustainable rurality strategy generate various issues for policy-makers on the EU-level and other levels of decision-making. Some important issues are mentioned below together with their links to the policy-options in the ESDP (between brackets). Most of these issues are related to both scenarios although not to the same extent:

- Mobilisation of the local recourses ('territorial capital') of the various rural areas in Europe.
- Promoting diversified development strategies sensitive to the local potentials of rural areas (13, 21).
- Promoting and supporting information exchange between rural areas in the enlarged EU (16).
- Exploitation of the development potential of tourism in rural areas (18).
- Preventing downward spirals in rural areas with low socioeconomic viability.
- Commodifying and marketing of cultural landscape and other local qualities of rural areas (53).
- Guaranteeing a minimum acceptable level of environmental protection in rural areas (14).
- Preventing the dissemination of genetically modified plants and seeds.
- Preventing abandonment of farmland or using it in other productive ways.

8.2.4 Possible ESPON indicators for the rural development scenarios

The 'ESPON-Database' contains the following key indicators and variables related to agriculture and rural development. The indicators are the same for both scenarios.

Agriculture
- Total agricultural areas: percentage of total area which is UAA.
- Agricultural area by main crops: percentage of UAA which is arable, fallow, under permanent crops or permanent grass.
- Average farm-size per region: hectares of UAA per holding and SGM per holding.
- Agricultural subsidies per region: value of agricultural subsidies per hectare UAA.
- Pollution: value of fertilizer input per hectare of arable land.

Rural development
- Location of rural areas: urban – rural typology.
- Land-use in rural areas: arable land, pastures, permanent crops, heterogeneous agricultural areas, forests, open spaces with little or no vegetation, inland waters, inland wetlands, marine waters, marine wetlands, and seas and oceans.
- Wealth and income in rural areas: GDP in PPS per inhabitant and GDP in PPS per inhabitant in EU average.
- Population in rural areas: population density, population by age groups, percentage share of population in the ages over 65, and migratory balances pr 1.000 inhabitants.
- Rural development subsidies per region: not available yet.

9. Thematic scenario 'Climate change'

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9.1 Scenario base: climate change

9.1.1 Present situation and trends

9.1.1.1 Current state of affairs

Climate change is supposed to be the biggest environmental threat in future, with rather unpredictable consequences. Dealing with climate change means dealing with long-term processes (decades to centuries), with a large degree of uncertainty. In this text, magnitude, time span, uncertainties and impacts of climate change are put into perspective, as well as current and possible policy reactions.

The causes and consequences of climate change can be simplified by a chain of causalities and consequences. Emissions from transport, industry and other sectors lead to increasing atmospheric greenhouse gas (GHG) concentration. This concentration, in turn, leads to many climatologic changes: temperature rise, difference in annual precipitation, and occurrence of extreme weather events. As a consequence, ecosystems change or move geographically, hydrological regimes of rivers change, and ice and snow cover are retreating. Both climatologic and other natural consequences of climate change affect society in a number of ways, varying from increased natural hazards to persistent water scarcity.

9.1.1.2 Trends and territorialization

Many figures have been published on climate change. Emission rates have started to increase since the 1850s at the beginning of the industrialization age. Atmospheric concentrations of greenhouse gases started to rise from 280 ppm to 375 ppm from 1900 to 2000, with a sharp increase in the last decades. Concentrations in 2000 are the highest of the last 400,000 years (IPCC, 2001).
The most evident climate response is the rise of average world temperature by 0.7 C; in Europe average temperature rose by 0.95 C (EEA, 2004). Precipitation patterns have changed, too, with a 10 to 40% increase in Northern Europe, and up to a 20% decrease in the south. The occurrence of extreme weather events has not convincingly changed, although some indicators point in this direction.
Some natural consequences are very clearly related to climate change. Sea level has risen by 15 cm on average due to melting of arctic ice. Mountain glaciers in the Alps are retreating, and growing season in Central Europe has increased by 10 days since 1960.
Other events are harder to relate to climate change, both because of other factors interfering, the incidental nature of certain extreme events, and increasing vulnerability of societies. Floods might for example be caused by increased built up areas, and the damages might have increased due to recent urbanization in flood-prone areas.
Nevertheless, indicators exist that different parts of Europe are experiencing some consequences already. In the past 20 years, the number of large floods has been exceptionally high in Central Europe, whereas drought has seriously affected agricultural production systems in the south.

9.1.1.3 Projections and expert visions

To estimate future climate change, the IPCC has identified six scenarios of greenhouse gas emission, according to different socio-economic and technological developments. For each emission scenario, climate change has been quantified by applying a range of models. The difficulty with these models, though, is the uncertainty about the exact mechanism of climate change. The influence of CO2 emission on climate change is (almost) without dispute, but the interactions between emission, concentration and climate change are not fully understood. As a result, each scenario presents a range from a possible minimum to a possible maximum climate change impact.
Between the scenarios and the uncertainties altogether, the minimum expected temperature rise is expected to vary between 1.4 and 5.8 C worldwide in the year 2100, as compared to 1990 levels. For Europe, figures are slightly higher: 2.0 and 6.3 C. All European regions will be affected, although to a lesser extent in the north. In all scenarios, rainfall will be less in the South, whereas Northern Europe is expected to receive more rainfall. Extreme weather events are expected to increase, although very little has been unraveled by science so far.
For the year 2030, the difference between scenarios is very small. This is illustrated by the small variation of temperature rise predicted by 2030, all less than 1° C. The small differences are due to the large time lag existing between changing emission rates, and the consecutive climate change and its impacts. A reduction of CO2 emissions within 10 to 50 years leads to a stabilization of atmospheric CO2 concentrations in 100 years, a temperature stabilization in a few centuries, while sea level rise continues even up to millennia.

Impacts on natural systems and society will be large, but only be felt seriously after the year 2030. Most important impacts are water shortage, desertification, forest fires, decreasing tourism and agriculture in Southern Europe. In the north, floods are expected to be more intense and frequent. Agriculture will expand northwards. Mountainous areas are affected by shrinking winter seasons, negatively affecting tourism. Biodiversity is at threat in most areas. And with frequent heat waves, human casualties will increase. Coastal areas will be affected on a very long term by sea level rises of almost 1 meter by 2100 and possibly up till 5 or 10 meters in the century thereafter.
A more precise estimation of climate change impacts on a regional level has not been published, yet. This is due to the difficulties to regionalize climate change itself, particularly the extreme weather events leading to floods, draughts and storm surges. Several projects are under way to fill this gap (PRUDENCE, ENSEMBLES), but scientists state that they are not yet at the promised level where regional climate models can really influence policy-making.

9.1.1.4 Coping mechanisms

There are two coping mechanisms to deal with climate change: mitigation and adaptation. Mitigation measures try to reduce greenhouse gas emission and therefore temper the magnitude of climate change. Results can only be expected at the very long run. Mitigation can be in the form of emission reduction (reducing transport or cleaner technology) or capture of CO2 (forest, agriculture).
Adaptation measures are interventions to deal with the impacts of climate change. Adaptation can be pro-active, or preventive, which means that investments take place to prepare for events that might eventually happen. Reserving more space for river beds is a preventive measure; transformation to a less water consuming agriculture in drought areas is another example. Measures can also be re-active. Actions of this kind only deal with the consequences of events as they happen. Reparation of farmers´income after misharvest or flooding is an example.

In producing scenarios for climate change impacts, mitigation and adaptation measures must be taken into account. If mitigation proves successful, emission rates are lower. If adaptation measures are put in place, climate change impacts will not be as serious as they will be without. The other side of the coin is that both measures require visionary and often costly measures. These measures in themselves might have large spatial impacts, too, like the promotion of sustainable energy by wind and bio energy, by water pricing in drought areas, by maintaining landscapes against desertification, or by capturing CO2 through large scale reforestation programs. Politicians might be reluctant because the results of their efforts might never be proved, given the enormous uncertainties and large time span of climate change processes.

9.1.2 Existing relevant EU policies

9.1.2.1 Existing policies

Until now, explicit EU climate change policies are exclusively focused on mitigation efforts to reduce emission of greenhouse gases. They are geared along two lines: first by defining targeted climate change policies, and second by integrating climate change in sector policies. Examples of specific climate change policy are the implementation of a greenhouse gas emission monitoring system and the Directive on Greenhouse Gas Emission Trading (2003) which allows for flexible application of trade schemes. Best example of integrated sector policies is the European Program on Climate Change (EPCC, 2001). Most involved sector policies were energy (energy efficiency, promotion of renewable energy, CO2-energy tax, energy networks) and transport (energy efficient transport, focus on rail and water transport, road pricing).
Aside from the Kyoto targets, the EU has put a long term goal to limit global mean temperature increase to 2° C above pre-industrial levels. This requires in the long term a stabilization of GHG atmospheric concentration of well below 550 ppm. The EU stated that this requires a serious limitation of emission rates to 60% below the 1990 level by 2050. How this should be achieved is still to be negotiated.

An EU framework for adaptation measures to climate change impacts is missing so far. The Sixth Environmental Action Program says the EU should prepare for measures aimed at adaptation to the consequences of climate change, by 1) reviewing Community policies, in particular those relevant to climate change, so that adaptation is addressed adequately in investment decision; 2) encouraging regional climate modeling and assessments both to prepare regional adaptation measures, and to support awareness rising among citizens and business. The 6EAP also underscores the need for consistent policy on prevention, preparedness and response to natural man-made and other risks.

9.1.2.2 Policy impacts

The two main topics in emission reduction are the internalization of climate costs of energy use by taxes, and the way technological innovation should be promoted. On the internalization issue, little progress has been made. Commissions´ initiatives in this direction have been vetoed since 1992. Only in 2003 the first agreement on taxes has been made, with many exemptions, long introduction periods and applicable only to a few sectors. Technological innovation, on the other side, has been successful to some extent. The car industry has voluntarily committed to emission reductions in EU negotiations, and governments have also invested in clean technology implementation, like wind energy.
These and other mitigation measures have to some extent been successful: emission has fallen by 3% since 1990. However, reduction targets are not being met, and emission rates

are increasing again since 2000. Measures currently in place will not allow the EU to achieve its Kyoto target (Commission of the EU, 2003).
The spatial effects of these measures have not been significant so far. The only exception is the promotion of wind energy, which has increased and changed landscapes in some parts (Germany, Spain). Limitations due to taxing high emission use of transport or conventional technology are not being felt.

Impacts of adaptation measures have not been systematized due to the lack of a EU policy framework on climate change adaptation. Programs addressing issues which can be classified as adaptation measures have not been reviewed for the purpose of this text.

9.1.2.3 Current relevant policy debates

The EU policy debate on climate change focuses on three issues: the extent to which climate change policy is needed, the mechanisms which are most appropriate to reduce emission rates, and the way adaptation measures should be carried out.
Firstly, European countries generally consider climate change as a serious threat which requires immediate action. The latest EEA publications urge for accelerated GHG emission reduction if the 2° C target is to be met. Although the EEA is rather optimistic in possibilities to do so, the additional measures would cost up to 0,6 % of EU GDP. Is Europe prepared to pay that price?
Secondly, there is a large difference of opinions between those advocating enforcement of lower emission rates by pricing the polluters, and those in favour of stimulating measures to shift towards clean technologies. Another debate concerns the way emissions can be traded. Disagreement exists whether emission reduction should be achieved in a nation's own territory, or if excessive emission rates can be compensated by buy-offs from other countries.
Thirdly, the need for EU-funded adaptation measures is discussed. Since damages of any kind are so difficult to relate to specific climate change impacts, adaptation measures are hard to quantify. On the other hand, solidarity in handling climate change impacts between countries which are and are not hit by its consequences appeals to the basic principles of the EU.

9.1.3 Most important driving forces

9.1.3.1 Driving forces of climate change

Evidently, the driving force behind climate change is the emission of greenhouse gases. The rate of greenhouse gas emission depends positively on economic growth and negatively on the introduction of clean technologies. There are, on the other hand, some forces which temper or aggravate this force. These forces are the natural systems of sinks and emissions of CO2. Vegetation captures CO2, therefore an increase of vegetation cover worldwide extracts greenhouse gas from the atmosphere. Water, snow and ice also store CO2. Although these natural forces are to be taken into account, human induced emission rates are potentially much higher in quantities.

9.1.3.2 Driving forces from science, society and policy

Climate scientists determine to a large extent the agenda for climate change policies. If they would not have published about the issue, society would not be alarmed. As a result, there is a pressure on scientists to produce more consistent predictions on climate change impacts than what is currently available. If scientists fail to minimize the current uncertainties, certain parts of society might lose interest in the issue.

In society, environmental lobby groups have been important in putting climate change on the agenda. On the other hand, business groups are often combating measures which might harm economic growth. Overall, societies attitude is crucial in the way policy changes are acceptable. Road or water pricing in an atmosphere of urgency tends to be more successful than in an adverse climate of uncertainties whether these measures will at all address the problem.
The political arena about climate change is very much determined by worldwide developments, particularly on mitigation measures. Any emission reduction in Europe is worthless if the US, Asia and other rapidly developing countries are rapidly increasing their emission due to economic growth and limited convincement to reduce emission rates.
It is important to stress that European regions contribute differently to climate change by varying emission rates, and that the consequences of climate change are unequally spread over Europe, too. Regions which hardly produce greenhouse gases, but receive many impacts might have a different standpoint to climate change policies than other regions.

9.1.3.3 Relation with other themes

Causes and consequences of climate change, together with the coping mechanisms proposed by society and policy make the issue of climate change extremely interdisciplinary. The most relevant issues are mentioned, without intention to prioritize or to be exhaustive.

- Economy: high growth means more emission and more climate change
- Technology: clean technology means less emission.
- Agriculture: potentials for agriculture change according to changing climate zones and water availability.
- Energy: alternative energy means less emission, but potentially large spatial impacts (generation of wind energy, production areas for biofuel, other mechanisms of transport of energy).
- Transport: as alternative sources of energy do not become available, reduction of transport might be enforced.
- Hazards in general: these might increase due to climate change (floods, droughts).
- Tourism: areas which become less or more attractive.
- Nature: ecological zones shift geographically, stressing the survival of many vulnerable species.

9.1.4 Identification of scenario hypotheses

It could be argued that the magnitude of climate change and its impacts should be put at the core of scenario building. However, differences between climate change projections are only becoming significant after a 30 to 50 years time period. Any extreme climate fluctuations before 2030 would be rather unrealistic.
Since ESPON scenarios look forward to 2030, only one storyline for climate conditions has been put forward. Global warming has continued, northern Europe has received more intensive rainfalls, and southern Europe has faced serious droughts and heat waves. However, the magnitude of these developments has not been dramatic until 2030.

What might considerably differ in the next 25 years is societies and politicians´ attitude towards climate change. Two different scenario hypotheses are built around two extreme policy standpoints on climate change: *face consequences as they come* or *prepare for the worst*. These two opposing standpoints are the base for the story lines of both sketches. In the first scenario, only weak measures are taken, whereas in the second sketch, all will be done to reduce emissions, and to prevent disastrous damages by taking adaptation measures.

The reason for identifying coping mechanism as a base for the two climate change scenarios is the developments of the past three years, which point to an increasingly difficult situation to achieve international commitments to reduction of greenhouse gases. This alarming situation, also stressed by the G8 presidency, justifies the standpoint that the world, and Europe in particular might be at a breakpoint between the two scenarios.
The emphasis of the scenarios is on the impacts of climate change and adaptation measures to deal with those impacts. Impacts might have very different consequences across the European territory. At the same time, no scenarios have been made before on impacts and the effect of adaptation measures. Scientific knowledge about the effectiveness of adaptation is still immature. Therefore, the scenarios provide for a thinking exercise on how adaptation could help alleviate the worst consequences of climate change.
Greenhouse gas emissions and mitigation measures to reduce them, are briefly included in the scenarios. For this purpose, the EEA scenarios, published in 2005, are copied. Scenario 1 coincides with the baseline GHG emission scenario; scenario 2 is based on the low GHG emission scenario. The pathway how to get to these emission reductions are taken from EEA scenarios as well.

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9.2 Scenarios

9.2.1 Scenario 1: 'Repairing instead of preventing'

9.2.1.1 Scenario hypothesis

The potential magnitude of climate change over a long time period has been recognized, but the main players in the policy arena are reluctant to take preventive, sometimes drastic measures. As a result, emission rates are slightly higher in 2030 than they were in 1990, and climate change impacts hit as they come along. Only reparation measures are taken after events happened.

9.2.1.2 Driving forces

Driving forces related to possible attitudes and policy responses regarding climate change are among others:

- The existence of other important priorities in the public debate which overshadow the issue of climate change, such as security and terrorism, immigration and integration, population ageing, boosting economic development;
- Uncertainty about magnitude and impacts of climate change;
- Difficulties to identify cost-effectiveness of long term adaptation measures.
- Insufficient awareness about the potential impacts of prevention measures;
- Resistance of society and stakeholders towards changing attitudes and practices.

9.2.1.3 Context

Although growing evidence and public concern about climate change took place between 1990 and 2005, this issue could not improve its position in the political agenda. Alternative proposals based on a trust in market-driven development of clean technologies by US and Asian countries gained positions as compared to the Kyoto emission regulation approach advocated by the EU.
Moreover, no clear ideas about adaptation strategies had been developed by 2005, more than general statements about the high vulnerability of developing countries. Extreme weather events in 2002 and 2003 led to the initiation of the most relevant prevention measures, such as an EU flood regulation plan, and some local initiatives on the prevention of deaths in case of heat waves. In spite of initiatives in some countries (UK, Finland, Spain) to think of long term adaptation planning, this way of thinking was still at a very early stage.

9.2.1.4 Scenario process

The implementation of the Kyoto Protocol in the EU followed a problematic pathway. Although the Protocol came into force in 2005, and despite the introduction of an emission rights market, few additional measures were taken. No tax was put on conventional energy, because this was hampering economic growth. Public spending on R&D efforts for the development of clean technology was not increased. Optimism reigned that market forces would promote this technology, pushed by high oil prices.
In 2008, it was clear that the EU emission rate was 10% higher as the Kyoto targets proscribed (1% above 1990 level), and emission levels worldwide increased even more. Although a new climate protocol was drafted, its targets were considerably less ambitious as foreseen by the original EU position in 2005.

Meanwhile, climate change took its toll in different ways across several regions in Europe. In southern Europe, 2004/2005 drought was followed by more and longer drought periods in the years after. Northern Europe was hit by floods of different magnitude, whereas some years with heat waves of the magnitude of the 2003 summer repeated. Average climate values like temperature and growing season increased on general.

As a result, many problems unfolded. *Energy supply* was threatened in several occasions. In some regions, such as Corsica, it had been necessary to urgently import oil-fuelled machinery to produce electricity, because hydro-electric plants had no more water reserves. Over all Europe, power plants temporarily decreased their capacity in times of low river discharge, causing some alarming shortages of electricity in times of heat waves, when consumption of air-conditioning was at its highest.

Water scarcity was an important issue in many southern European countries. Serious shortages only occurred for agriculture, however, it had its effect on the price of industrial and drinking water.

Agriculture was affected mostly negatively in southern Europe. Existing production systems with a high demand for irrigation water were facing heavy losses due to years with water shortages. Changing climate affected all regions in Europe, where ideal growing conditions for a certain crop shifted northwards. This process put particularly dryland agriculture in southern Europe at stake, whereas regions like southern Scandinavia saw there agricultural potential increase. Numerous rural areas in the central and northern parts of Europe had to compensate for the decline of agricultural production in southern Europe. Production of dairy products, vegetables and fruits intensified and the production of energy crops strongly developed. Rural areas were therefore put under high production pressure while they were more and more abandoned by farmers in southern Europe.

Heavy rainfall caused more *floods*, particularly in northern Europe. Damages were significant, because a lot of factors were working against the development of prevention measures. New settlements were developed along rivers due to land speculation and existing building rights.

Sustainable landscape management in southern rural areas became extremely difficult. Extreme rainfall events caused numerous damages to soil structures, but were not very beneficial to the re-constitution of underground water reserves, because their duration was too short and their occurrence too irregular. Every year, in particular in summer time, numerous forest fires destroyed large forest areas in southern regions, causing damages also to settlements. The more forests were destroyed, the more the water and humidity retention capacity was reduced. This vicious circle led to more severe constraints in terms of water management and occasioned the washing of soil through periodic heavy rainfalls.

Biodiversity decreased or altered in most areas due to changing climatic conditions. Some species could migrate, but many couldn't because of the isolated location of their living environment. As a result, many species became extinct.

Tourism was affected, too. In southern coastal regions, mass tourism was confronted to a significant shortage of water supply. The construction of de-salinisation plants of sea water became generalized and this absorbed important amounts of resources and increased the price of holidays. The attractiveness of these regions was also reduced by the fact that numerous highly water consuming facilities such as golf terrains, large swimming pools, artificial parks and green areas etc. had to be restricted. Winter tourism in mountain regions also lost importance, because the occurrence of snow falls became more and more irregular. Seasons for skiing started later and ended sooner. On the other hand, new tourism opportunities grew in central Europe, particularly in coastal areas, where a more stable weather conditions attracted new tourists. All together, the economic importance of tourism in southern Europe declined, whereas it increased in Northern Europe. A significant revival of tourism could be observed in central and northern Europe, but benefiting also to a number of mountainous areas. Winter sport in Nordic countries became very popular.

All material damages caused by the different hazards summed to ever growing losses in terms of money. Insurance companies were forced to change their business models, because costs became far to high to maintain full coverage of all risks.

Human losses were becoming important in times of heat waves and floods, notwithstanding some measures like better attention to elderly people. The spread of lyme disease had accelerated because of favorable conditions for its transmitter; teak.

By 2015, these developments delivered a picture of increased vulnerability to climate change, in an environment which was adverse to taking costly measures for both mitigation and adaptation measures. Therefore, politics reacted in a defensive way to these developments.

On mitigation, ongoing energy intensity measures were successful. However, the role of hydro-electricity in energy supply, which had been the most important renewable energy source in southern mountainous regions, decreased significantly. Political pressure for building new nuclear and coal power plants developed.

The intensity of damages generated by climate change had reached such levels that national governments could not cope with the numerous requests for subsidies to finance repair works and to compensate for the loss of farmers' revenue. After difficult negotiations, a specific fund was created in the EU budget, on the model of the budget line for natural hazards created at the end of the 1990s, but with a significantly higher amount of resources. This amount had to be regularly increased. However, no large investments were made for adaptation measures in the long run. The lack of cost-effectiveness calculations refrained the EU from doing larger investments.

By 2030, mitigation measures proved to be too small to make a difference. While new technologies made it possible to reduce nominally the amounts of greenhouse gas emissions, the increase of traffic flows, the development of new coal-fired power plants aiming at counteracting the high price levels of oil and gas, generated large volumes of greenhouse gas emissions. EU greenhouse gas emission was still 8% above the 1990 levels. Climate scientists agreed that a temperature rise of 4° C by 2100 was unavoidable, even if drastic measures would be put in place before 2050.

Damages caused by natural hazards had further increased, and the production basis of the most affected regions (like rural and coastal areas in the south) was seriously deteriorated. EU hazard funds could not cope anymore with the magnitude of the damages.

9.2.1.5 Impacts

Macro-economic impacts

Macro-economic impacts of mitigation measures were negligible, since only cost-effective measures were put in place. However, the costs of new measures towards 2050, needed to prevent a catastrophic climate change towards 2100, are huge.

The macro-economic impacts of natural hazards caused by climate change have been significant. On the one hand, sudden events, such as forest fires of flooding caused important damages to settlements and landscapes which made expensive measures for repair and maintenance necessary. On the other hand, the economic capacity declined structurally in a number of regions, in particular in southern Europe, and more particularly in rural regions and in tourist areas (coasts and mountains). The loss of revenue of the economic stakeholders concerned had to be compensated for by the distribution of resources from public budgets.

Regional impacts

At macro-scale, a clear difference existed between northern and southern Europe. Mediterranean, South-West and Southeast Europe were most severely hit by climate change impacts through highest temperature rises, combined with prolonged drought periods. The attractiveness of southern Europe decreased, causing a slowdown of the southward migration flow. Economic development was hampered in the south, causing the economic gravity point to move northward. Central and Northern Europe experienced a boost on agricultural development, whereas Southern Europe saw this sector decline.

At meso-scale, several territorial divisions can be made. In *rural areas* in southern Europe, emigration processes that already took place in 2005 have become more widespread, due to a worsening situation in the agricultural sector, and a lack of alternatives. Abandoned, desertificated regions could be found in large parts of all Mediterranean countries. Rural areas in northern Europe were undergoing increasing pressure to expand agricultural production, due to the decrease of production in Southern Europe. This could affect negatively on natural and environmental conditions.

Mountainous areas proved particularly vulnerable to climate change. The loss of biodiversity was high in these regions, making natural management by corridor development extremely difficult. Decreasing snow cover led to declining winter tourism; by 2030, there were no more ski resorts below 1500 meters in the Alps. Water retention in mountainous areas became more difficult, particularly in the south, which led to the loss of another production basis for these areas: hydropower and irrigation water.

Coastal areas throughout Europe experienced large changes. Large scale tourism in the Mediterranean had suffered losses due to adverse climate conditions in summer time. These could not be compensated by increased attractiveness in spring and autumn. On the other hand, coastal areas in Central Europe were more and more invaded by mass tourism due to stable weather conditions in summer. All coastal areas throughout Europe experienced serious decline of biodiversity, because of fragmentation of ecosystems and the lack of migration possibilities. Coastal plains on or below sea level experienced an increased threat of floods, although no calamities occurred so far.

At the level of *river basins*, problems with water management increased. While mountains are generally considered as water providers, valleys and plains are the beneficiaries. If mountains become dryer, valleys and plains will be negatively affected.

At micro-scale, *flood prone areas* were indeed more severely hit by floods. This caused numerous deaths as well as a large economic loss. The losses were so high because the construction of housing in flood prone areas had continued.

9.2.1.6 Final image

By 2030, climate change, accompanied by a lack of prevention policies, has led to important modifications of the European territory.

In southern Europe, large stretches of hilly and mountainous areas which were in 2000 covered by oak and pine forests, have burnt and drought had not made possible the reconstitution of forests. They have become arid and desert areas with only little vegetation. A number of rural areas have been abandoned by farmers. Rural landscapes have no more been maintained and cared for, so that they are invaded by wild vegetation drying in summertime and particularly prone to fires. Life in villages and small towns has been shrinking, with less services and jobs and more ageing population. A number of holiday resorts in coastal areas and in southern mountains have become derelict sites.

In central and northern Europe, the situation is strongly different. Rural areas are more intensely used, both for food and energy production. Tourism is flourishing again, in particular in hilly landscapes and medium-sized mountains. Nordic areas also benefit more from tourism.

Damages to the environment are significant. In southern Europe, valuable Mediterranean landscapes have been destroyed. Numerous areas have become more sensitive to external pressure (sensitiveness of soil to heavy rainfalls, higher risk of fires, fragilisation of ecosystems etc.). Water resources are largely exhausted and do not enable any more the development of large-scale projects. The abandonment of rural areas by farmers has severely affected the cultural landscapes. Derelict sites have emerged in tourist areas.

In central and northern Europe, damages to settlements, infrastructure and landscapes have been caused by flooding in numerous valleys. Stronger environmental pressure can be observed in a number of rural areas due to more intensive agriculture.

9.2.1.7 Main issues resulting from the scenario

Climate change seems unavoidable and brings with it long-term effects and impacts on the territory. If public policies limit themselves to the Kyoto Agreement and its successor, hoping that the reduction of greenhouse gas emissions will solve the problem, then two types of problems may appear. First, the implementation of the Kyoto Agreement (and the elaboration of a successor) may prove more difficult than expected and second, even if successful, its impacts will be noticeable only in the very long-term. In between, numerous negative aspects of climate change will cause serious damages to the European territory.

9.2.2 Scenario 2: 'Anticipation of climate change by prevention measures'

9.2.2.1 Scenario hypothesis

Politicians and society are thoroughly tackling the climate change issue as a result of a common sense of urgency. Mitigation measures result in drastic cuts in emission rates by 2030, at the expense of some economic growth. Adaptation measures are taken, not only in reaction to extreme weather-related events as they happen, but also envisioning impacts in the long run. As a result, the negative territorial impacts of climate change are at least alleviated by 2030.

9.2.2.2 Driving forces

Driving forces behind this scenario are all related to a growing sense of urgency amongst politicians and other stakeholders to deal with climate change impacts:

- The awareness of damages already caused by climate change in European regions and the need to urgently take measures in order to avoid the amplification of such damages in future;
- The awareness that the deterioration of the European territory by natural hazards has extremely negative economic and social impacts and endangers the mobilization of the territorial potential of European regions;
- The political willingness to tackle the issues related to climate change at European and world level with strategies additional to the Kyoto agreement.
- Growing scientific input on regional climate change impacts and instruments to plan for long term adaptation measures.

9.2.2.3 Context

During the decade 1995-2005, Europe has been affected by a series of natural hazards related to climate change (flooding, hurricanes, drought, forest fires etc.) which had a strong psychological impact on the European population and on elected people. The drought in southern Europe during the winter 2004/2005 showed the amplitude and extent of territorial damages and acted as a kind of catalyst for awareness rising. It became clear at European level that more resources should be invested in prevention measures instead of distributing EU money case by case to repair the damages already caused by natural hazards. The first calls for an adaptation framework at EU level were made in 2004.
In 2005, the Kyoto Protocol came into force, thereby facilitating mechanisms like the exchange of emission rights. Although emission levels were rising in the years 2003-2005, the EEA showed that the Kyoto targets could be achieved with additional measures at national and EU level.

9.2.2.4 Scenario process

The Kyoto Protocol had been taken seriously by the EU. Signs that pointed to an increasing emission in the 2003-2005 period were responded by more severe actions on emission reductions. The emission rights market was successfully implemented. The carbon permit price was steadily increased to EUR 65/t CO2 by 2030. Public spending on R&D increased, and potentially environmentally harmful subsidies were removed.

The development of renewable energy sources was considered as important because the increase of average temperature has significant impacts on energy demand, in particular in summer time. The objective was to reduce electricity demand from hydro-electric, conventional oil or gas fired power plants as well as from nuclear power plants. To this end, solar and wind energy were significantly promoted and generalized. This made possible the saving of water in mountain and river barrages and to limit the emission of greenhouse gas. An additional advantage was that imports of electricity from northern and central European regions could be restricted.

Transport policies had to be re-considered from the point of view of greenhouse gas emissions. New technologies were promoted in order to limit the consumption of fossil energy, especially oil. New types of engines were developed, using less energy as well as other types of fuels. Hydrogen powered engines were experimented, developed and promoted. The problem remained that of the production of hydrogen which is energy intensive. Electricity from renewable energy sources was used to produce a part of the hydrogen needed. It proved to be more difficult to influence the use of trucks and motor cars. Modal shift policies were not so successful as expected. Nevertheless, more and more people were inclined to use public transportation, the quality of which had been significantly improved and the transport of goods was partly shifted onto railways and maritime routes.

By 2008, the emission target of 8% below 1990 levels was reached. Other nations outside the EU also achieved some emission reductions, and believed in the regulatory principles of the Kyoto Protocol. By 2010, a new Agreement comes into force which establishes new emission targets at 40% below 1990 level by 2030.

These drastic measures were not only driven by worrying signs of long term climate change, but also by immediate impacts experienced throughout Europe. Impacts took place as described in the other scenario: droughts, heat waves, floods, water scarcity, declining or increasing tourists, worsening conditions for agriculture, etc.

The response was different, however. In response to the discussions about the need for a EU climate change adaptation policy, a framework had been adopted by 2007. Part of the framework was already addressed in the reform of EU structural policies in 2005/2006. The eligibility of EU-supported actions to measures related to the prevention of natural hazards was enlarged, in particular in relation to climate change. Main building blocks were the protection of water resources, the management of rural landscapes and forests, the

relationships between territorial development and renewable energy sources, the prevention of flood damages and the promotion of corridors for migration of species. Although cost-effectiveness was an important issue, it was not a condition for adaptation measures, since the effectiveness could not be measured according to the scientific knowledge at that time.

The integrated protection of water resources was a particularly important and ambitious priority, especially for the countries and regions of southern Europe. It called for numerous innovative techniques and practices and interfered strongly with a large number of fields of activity. The future of agriculture was one of the most central activities concerned. Crops requiring intensive irrigation were re-considered and adapted. The cultivation of various crops such as maize, requiring large quantities of water, was strongly restricted. Water-saving techniques and technologies were generalized and supported by public resources. Area-specific strategies were elaborated in order to optimize the cultivation of soil in relation with the characteristics of the area (hydrology, local climate, natural vegetation etc.). New types of cultures were introduced which took account of the increase of average temperature and of the scarcity of water. Awareness raising campaigns for farmers were systematically organized. Innovative experiments carried out outside Europe, in particularly arid regions, such as in Egypt, were used as sources of inspiration to match successfully agricultural development with the scarcity of water resources.

Action was also taken in the sector of tourism. Large-scale tourist projects in coastal areas dedicated to mass tourism were abandoned. Solutions were looked for in the case of existing resorts threatened by water scarcity. Reconversion programs were elaborated to promote the quality and diversification of supply in order to avoid the concentration of tourist frequentation in summer time when water scarcity is highest. Specific facilities and utilities were developed, combining hinterland tours, pedestrian and cycling activities, heritage-related and other cultural activities etc. In mountain areas, the relative decline of winter tourism was compensated by new forms of summer tourism; more diffuse and less damaging for the environment.

Agriculture and forestry were not re-considered only from the perspective of their relation to water resources, but also in relation to the maintenance of landscapes and vegetation. The search for new forms of cultivation followed also the objective, in addition to water saving, of maintaining and safeguarding agricultural activities in the southern European regions, in order to protect landscapes from wild vegetation drying in summer time and prone to fires. The management of forests was significantly improved with the implementation of important prevention measures against fires. This included also the promotion of specific tree species, less sensitive to drought. Despite the intensification of such measures, forest fires occurred. In such cases, new forestation measures were undertaken in order to avoid soil erosion and to favor the capture and retention of humidity.

The prevention of flood damages was another important priority, both in northern, southern and central European regions. The experience gained during the period 1995-2005 was used to generalize solutions. A number of measures were developed such as the extension of retention areas for water along rivers, the construction of new dikes to protect settlements, the removal of settlements unlikely to be efficiently protected against floods, the enforcement of measures prohibiting constructions and economic activities other than agriculture in areas threatened. In addition to these measures, specific radar-based weather forecast facilities were developed in Mediterranean regions to inform the population in due time about the occurrence of heavy rainfalls, so that necessary actions can be taken to protect human and animal lives.

The Natura 2000 plan was augmented with the construction of corridors between existing natural areas. The aim of the corridors was to enable species (fauna and flora) to migrate northwards or to higher altitudes in response to climate change. These corridors would not necessarily be protected areas; large tracks constituted of farmlands were assigned to be 'naturally managed'. A monitoring unit was established to verify the effectiveness of the corridors in nature's response to climate change.

By 2015, the strategy was considered as rather successful. The number of natural hazards related to climate change had increased, but their impacts had been relatively contained. These encouraging results led to a generalization in the implementation of the strategy. The reform of structural policies in 2013/2014 was again used to increase the volume of resources devoted to the prevention of risks and damages related to climate change, considering that this was a precondition to maintain a minimal production basis in the most vulnerable regions.

By 2030, the reduction of GHG emissions was so successful, that stabilization of climate change at a temperature rise of 2° C by 2010 was still a realistic target. Damages related to climate change had increased again, but its magnitude could well be handled due to the adaptation measures put in place.

9.2.2.5 Impacts

Macro-economic impacts

The costs of all mitigation measures mounted to 0.4% of the EU GDP by 2030. The other side is that the development of more indigenous forms of energy production and the reduction of external energy dependency contributed to lower energy costs and a technological advantage over the rest of the world. Adaptation measures also absorbed significant amounts of resources, in particular during the first decade of its implementation. Benefits were difficult to establish. Adapted forms of agriculture and tourism in the southern European regions could for example not avoid economic stagnation. However, things would be much worse if no adaptation would have taken place.

Regional impacts

At macro-scale, the contrast of impacts of climate change between southern and northern Europe remained limited. Migration flows of people from northern Europe towards Mediterranean regions (mainly retired people) were reduced, but did not stop, while emigration from southern regions towards more northern regions was contained. Economic development took place along the traditional patterns of hexagon versus periphery.

At meso-level, changes were also much less significant than under Scenario 1, although some changes were unavoidable. The changing water regimes of rivers in valleys and plains, conditioned by changes in the hydrologic systems of mountain areas, could unfortunately not be improved, but water-saving techniques in agriculture and energy production reduced the negative impacts of changing water regimes of rivers. Rural-urban relationships remained rather balanced, due to the fact that rural areas did not lose their vitality in southern Europe. In central and northern Europe, pressure on rural areas was less intense. Peripheral areas without fast train and maritime transport connection faced stagnating economic development, since the use of motorcars increased sharply in price.

At regional/local scale, damages caused by floods in the whole of Europe could be significantly contained, although the occurrence of floods increased. In southern European regions, landscapes could be safeguarded and the impacts of forest fires remained limited. Success in the management of water resources and in renewable energy production opened new development perspectives. The containment of road traffic especially the reduction of greenhouse gas emissions which it generates acted positively along the objectives of the Kyoto Agreement.

9.2.2.6 Final image

By 2030, natural hazards related to climate change had significantly increased, if compared with the situation prevailing in the early 2000s. The impacts of such hazards were however contained and the European territory had become significantly more resistant against floods, drought, forest fires etc.

A number of changes had taken place, when compared with the situation in 2005, in particular with regard to vegetation and ecosystems. Mediterranean vegetation had progressed towards the north. Ecosystems had significantly changed in nature, but disruptions remained limited.

Intensive agricultural production moved north- and eastwards into Southern Scandinavia and the Baltic States. Southern European regions became famous for the techniques they had developed to cope with climate warming, in particular in the fields of integrated approaches in water management, renewable energy production, maintenance of rural landscapes, development of new forms of tourism in coastal, rural and mountain areas.

9.2.2.7 Main issues resulting from the scenario

Even if climate change is a fatality, a number of prevention and mitigation policies can enable the containment of negative impacts and the limitation of impacts of generated natural hazards. Through various well conceived and integrated policies, the European territory can be made more resistant to the impacts of climate change. A number of opportunities generated by climate change can also be exploited.

9.2.2.8 Possible indicators for the climate change scenarios

Some indicators are readily available from IPCC, EEA and ESPON. However, the most interesting indicators which show costs and effects of adaptation measures are very difficult to operationalize.

Indicator	**Scale**	**Source**
Climate change and GHG emission		
Temperature rise	500x500 km	IPCC
Change of precipitation	500x500 km	IPCC
Emission rate	Country level	EEA
Cost of mitigation measures	Europe	EEA
Impacts		
Loss of biodiversity	Country level	EEA
Floods	NUTS3	ESPON .. / EEA
Growing season	Country level	EEA
Impacts, unknown sources		
Cost of adaptation measures		
Changing tourism		?
Deaths due to heat waves		?
Desertification		?
Changing GDP due to change of production system	NUTS2/3	?
Changing agricultural production		?

Table 13 Possible indicators

10. Thematic prospective scenarios 'Socio-cultural evolution and integration'

Jacques Robert (Tersyn)

10.1 Scenario base 'Socio-cultural evolution and integration'

10.1.1 Present situation, trends and forecasts

Socio-cultural issues are as numerous and as diversified as European society itself. They include a wide range of factors which strongly interfere with demography and economy, but have their individual characteristics and dynamics.

They are related to 'large-scale' issues such as the impact of globalisation on the lifestyles, the relationships between ethnic or religious groups, immigration from outside Europe and also terrorism. They also concern the increasing social divide with its growing negative impacts in the field of poverty, social exclusion and crime. The transition which has taken place in Central and Eastern Europe from the former communist regimes towards democracy and market economy has been accompanied by a thorough transformation of socio-cultural values and systems. A number of issues have more regional or local roots, in particular in the case of cultural and ethnic minorities. Most socio-cultural issues have strong territorial impacts.

Opinions about the impacts of globalisation on the socio-cultural evolution of Europe are strongly diverging. The most widely spread opinion is that in a global society the risk is high that Europe has no identity any more. Globalisation, driven by technological development, is changing people's life globally, their customs and institutions and their views on the future. The human existence perspective is being narrowed by the technological imperative to concentrate on economic and political utility. On the other hand, Europe has the ability to become a key actor on the globalisation process thanks to its human capital stock, its historical roots, its capacity of overcoming intercultural tensions and its environment-friendly attitude. Another aspect is that the economy being far ahead of culture in terms of integration, globalisation is also perceived as a danger to weaken identities, prompting local cultures to defend themselves from the emerging global culture. The widespread anti-globalisation movements and even the revival of religious fanaticism are signs of this problem.

The lifestyles of Europeans are changing and becoming more differentiated over time. During the decades of high economic growth in the post-war period, the western world experienced consumerism as the dominating lifestyle. During the 1980s and 1990s, lifestyles have changed under the pressures of economic constraints and growing unemployment as well as under the emergence of environmental consciousness. Other factors led to strong differentiation of lifestyles in Europe. The most important factor has been sustained immigration from outside the EU and largely from outside Europe (North Africa, Black Africa, Middle East, Asia etc.) which has generated a multicultural society in Europe. Although their importance varies among European countries, large ethnic and religious groups of non-European origin are present all over Europe and their size is

increasing because of both continuing immigration and higher birth rates than in the native European population. Not only Western Europe is concerned. In central and eastern Europe, the apparition of immigration as a mass phenomenon (from the Far East, and South-West Asia, from the ex-USSR, from Africa and from the Balkan countries) is important. The cultural differences among the various ethnic groups have impacts on the lifestyles.

Demographic changes, in particular population ageing, also influence the lifestyles. There are for instance clear indications of increasing mobility and different consumption pattern of the aged.

Consumption patterns are an important component of lifestyles. These are undergoing substantial changes. More and more people in Europe are coming to the awareness that an ever-improving economy can no longer be expected. They design their lifestyle without the expectation of continuing economic growth and therefore pursuit security and adopt a more passive, but rational attitude towards consumption. Quality is progressively becoming more important than quantity and volatility. In the past decades, ecological awareness has been instrumental in bringing about changes in production, products and consumption patterns. It has curbed, but not more, the tremendous waste in manufacturing, marketing and usage of the products. An increasing trend can however be observed towards ecological and ethical consumption. There are nevertheless considerable differences among social and ethnic groups.

In the countries of Eastern and Central Europe, the situation is quite different as regards the history of consumption patterns. These countries were not affected by the consumerism wave which flooded Europe from the 1960s to the end of the 1980s. On the contrary, consumption was severely constrained by the former regimes. Since the beginning of the 1990s, consumption patterns attempt to catch up, but are still limited by the purchase power. Simultaneously, these countries are also subject to the new consumption trends and changes which take place at global scale, so that an overlapping of contradictory trends can be observed there.

In addition to consumption patterns, mobility patterns are also shaping the lifestyles and are equally subject to structural changes. In general terms, people's mobility has been steadily increasing and diversifying as far as the purposes are concerned. As far as work-related mobility is concerned, a number of contradictory trends exist. The globalisation of production and trade systems increases the long-distance mobility of professionals. At local level, commuter flows are also growing in distance and in volume as a result of progressing suburbanisation. On the other hand, tele-work and homework are also progressing and have a clear impact on the reduction of mobility. They will continue to spread in the world of work, whereas tele-working will be more and more substituted by home-working: employees are turning into contractors and salaried people becoming self-employed. Increasingly, consumption and entertainment-oriented lifestyles are important factors driving the growth on non-work-related mobility. This trend spreads more and more also towards lower income households, implying a change in lifestyles as well. Cultural forces of change are at work which influence the development of leisure-oriented mobility. A significant impact on mobility is resulting from changes in the pattern of work, with travels during a larger number of longer week-ends and more numerous, but shorter holiday periods. The decreasing price of air fares encourages long-distance leisure mobility.

Finally, lifestyles are also affected by trends towards gender equality. Over the past decade, the employment rate of women has regularly increased. Despite the slowdown in economic growth during the last few years and the limited employment growth, a positive trend towards closing gender gaps could be observed in education and employment in the enlarged EU-25, while the pay gap between women and men remains almost unchanged.

Social cohesion and integration have become major sources of concern in the evolution of European society. A number of factors are at the origin of current problems, such as high unemployment levels, deficits in the integration of marginal or ethnic groups etc.

Access to employment is of key significance for social inclusion, since it determines in most cases whether people are able both to enjoy a decent standard of living and contribute fully to the society in which they live. Unemployment became a significant problem in the EU during the 1970s (impacts of oil shocks) and high unemployment rates remained up to now in most countries, with a few exceptions. Unemployment has also severely affected the countries of central and eastern Europe after the breakdown of former regimes. The situation has improved in between in a number of them thanks to courageous reforms which attracted significant levels of foreign investments.

Presently, all European countries are concerned, with more or less intensity, by poverty and social exclusion. Poverty is closely linked to unemployment. Only 7% of the employed population in the EU had income below the poverty line in 2000, as against 38% of the unemployed and 25% of the inactive. The risk of poverty is higher for particular household types. In the EU-15, some 35% on average of those living alone with dependent children and almost 30% of people of 65 and over living alone have income below poverty line. The risk of poverty and social exclusion is also important in the new member states. Poverty affects particularly ethnic minorities facing cumulative handicaps in terms of access to employment, to education, social services, housing and health care.

Social exclusion is a very broad concept which includes not only deprivation, but also problems of social relationships, including social isolation and failures in social protection. The impacts of social exclusion, poverty and deficits in integration are particularly visible at local level, especially in cities. Homelessness and multiple deprivation combined with growing insecurity and criminality are the most apparent manifestations of current problems. Typical problems in poor areas are inadequate play space, educational problems, problems of home maintenance, lack of community facilities, vandalism etc. It should not be overlooked, however, that inner cities and other urban deprived areas, where 'social exclusion is concentrated, equally function as 'spaces of inclusion' for those societal groups that are not accepted by mainstream society.

At a wider scale, regional identities are by essence a complex set of socio-cultural factors which play also a significant part in integration. A new development paradigm has emerged over the past decades, according to which strong regional identities favour territorial development. Identification with the region, combined with a distinct regional culture is seen as vital when striving at creating an atmosphere of trust, entrepreneurship and creativity among citizens. The discourse on culture within the new development paradigm aims at strengthening the feeing of solidarity and symbolic community among citizens. The promotion of regional identities has become a common element of numerous regional development strategies and not only in regions where clear deficit in regional identity can be observed. Nevertheless, strong regional identities may also generate drawbacks and lead to shortcomings in development and integration (provincialism and 'backward looking' cultures, social marginalisation of ethnic groups etc.).

In the countries of central and eastern Europe, a number of new tendencies are developing (in addition to immigration from outside) which strongly influence the integration process:

- Cultural and ethnic tensions between majority (ies) and minorities (Jews, gypsies, Aromanians etc.);
- Social and economic polarisation;
- Housing crisis, urban crisis;
- Strong suburbanisation, rise of gated communities;

- Isolation of the peripheral regions and sub-regions;
- Acculturation (by mass media, by demonstration effect, by circular migration);
- Growth of economic and general criminal activities.

10.1.2 EU policies related to socio-cultural development and integration

The EU has not a strictly defined policy of socio-cultural development and integration, but various EU policies deliver contributions in this field. IN this respect, the EU policies concerned can be divided in:

- employment-related EU socio-cultural policies. The European Employment Strategy, supported by the Social Fund, has three interrelated objectives: working towards full employment; quality and productivity at work and social cohesion and an inclusive labour market. To achieve this, the Strategy lays down employment guidelines, valid for the whole EU. Quality is the watchword: investment in education and training; schemes to help women, the long-term unemployed and older workers return to or remain on the labour market reduce unemployment and boost productivity. Progress in labour law, health and safety and social dialogue have helped the EU to develop its social model. Faced with far-reaching changes in the economy and the labour market, new responses to improving working conditions are needed: fostering economic dynamism and innovation, ensuring social stability and accommodating the needs of those adversely affected by the changes. The Social Agenda (2000) aimed at implementing the Lisbon Strategy with the objective to return to full employment. The Agenda has been putting forward new and better forms of governance of social policy. This means involving the different actors –unions, employers, local and national authorities and NGOs – more fully in shaping and implementing the policies and creating the right mix of policy instruments. The new Social Agenda (2005) has two key priorities: employment and fighting poverty and promoting equal opportunities.

- non-employment related EU socio-cultural policies. These comprise the EU cultural policy, public health policy and policy aiming at eradicating poverty and combating discrimination. EU initiatives in the cultural sector aim at encouraging cooperation between Member States and, if necessary, supporting and supplementing their actions. The aim is to encourage the creation of a 'European Cultural Area'. Cultural cooperation is encouraged by means of the Culture 2000 Programme, but also by specific actions financed by other European programmes. These involve European cooperation in the broad sense, since the majority of the programmes are open to the Member States of the European Economic Area and to the applicant countries. Various other policies are also supporting cultural activities in the EU (structural policies, R&D policy, European Neighbourhood Policy etc.). On 23 September 2002, the European Parliament and the Council adopted a Decision on the programme of Community action in the field of public health (2003-2008). This programme entered into force on 1st January 2003. In 2002, the Commission proposed a new Community strategy on health and safety at work to cover the period until 2006. It builds on the knowledge that the absence of high quality occupational health and safety policy generates a significant economic cost. In the context of the Lisbon Strategy, the EU governments set the goal of making a decisive impact on eradicating poverty by 2010. Commission's plan was for Member States to coordinate their social protection policies within a single coherent framework. Under the plan, national action plans set targets for reducing the number of people significantly at risk of poverty and social exclusion with measures to help the most vulnerable as one of the priorities. Non-discrimination is considered as important to tackle poverty and deprivation and bring the marginalised into mainstream society. Ground-breaking EU legislation on combating discrimination based on race or ethnic origin, religion or belief, age, disability.

10.1.3 Main driving forces

Driving forces in the socio-cultural field or with significant impacts in this field are in particular:

- growing social-economic dualisation in a context of high unemployment, rising poverty and increasing concentration of wealth;

- the globalisation and European integration processes (unification of lifestyles and of cultural behaviour);

- continuation of immigration into Europe, bringing with it different socio-cultural patterns and behaviours; increasing size of population groups of non-European origin (high fertility rates of women belonging to these groups);

- technological evolution (impacts on consumption, leisure and mobility patterns; on employment/unemployment and social exclusion);

- population ageing, bringing with it different values, lifestyles, mobility patterns;

- perception of integration problems by the European population (potential political impacts)

- EU-enlargements (past and future);

- socio-cultural integration policies at various levels; multiculturalist approaches.

10.1.4 Towards hypotheses for prospective scenarios on socio-cultural evolution and integration

The wide diversity of aspects and dimensions in the field of socio-cultural evolution and integration makes the choice of hypotheses for prospective scenarios particularly difficult. Looking however at the aspects causing presently greatest concern and likely to increase in significance in future, the socio-cultural integration of marginal and ethnic groups, in relation with immigration, has a prominent place in the list. Taking into account the context of population ageing and the growing immigration into the EU, it seems appropriate to investigate two opposite possibilities:

- a situation where current integration problems will amplify under the effect of growing immigration and inappropriate public policies at various levels. Lack of coordination and insufficient efficiency of public policies will favour the development of a segmented European society with increasing economic imbalances between groups, growing social and cultural tensions and conflicts. Impacts on cities will be particularly severe. In terms of policies applied, the scenario hypotheses are rather close to trends, but combined with an increase of problem intensity calling for new policy responses which do not take place.

- an alternative situation where problems of socio-cultural integration have been recognised as a priority issue at highest level in the European context and where innovative integration policies are being developed and applied in a coordinated way so as to shape a peaceful multicultural society in Europe.

10.1.5 Sources of information

The scenario base results from a compilation of information from the following documents:

'Third Cohesion Report'. European Commission. 2004.

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'Lifestyles and the environment'. C. Harrison; G. Davies. ESRC Global Environmental change Programme. University College. London. 1998.

'Lifestyles, mobility and the challenge of sustainability. A survey of literature'. L. Hilty; A. Vollmer; D. Schulthess; T. Ruddy. Solothurn University of Applied Sciences. 2000.

'Europe: expectations and reality'. Reports of the Second European Social Science Conference. Slovak Commission for UNESCO. Bratislava. 1999.

'Communication of the Commission on the Social Agenda' COM(2005)33 final. European Commission. 2005.

'Communication to the Spring European Council: working together for growth and jobs. A new start for the Lisbon Strategy'. European Commission. 2005.

'Commission working document. Application of Art. 151(4) of the EC Treaty: use of the Structural Funds in the field of culture during the period 1994-99. European Commission.

'Modernising the European social model'. European Commission. 2003.

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'Cultural identity and political responsibility'. N. Burgi-Golub. Cultural Policy. Vol. 0. 2000.

'L'impératif de la sécurité culturelle dans l'Europe morcelée'. E. Delgado (1995).

' Culture, identity and regional development in the European Union ». J. Süssner. Informationen zur Raumentwicklung. Heft 4/5. 2002.

'Regional identity and social capital in regional economic development and planning'. Gaari Raagma. University of Tartu.

10.2 Prospective thematic scenarios 'Socio-cultural evolution and integration'

10.2.1 Scenario 1: Non-mastered socio-cultural integration

10.2.1.1 Scenario hypotheses

The main hypothesis of the scenario is one of increasing socio-cultural tensions and disruptions in Europe. Tensions between income groups, ethnic and religious groups are increasing and public policies are not successful in promoting social inclusion and integration as well as tolerance between the various cultural communities. Numerous elements of the scenario's hypotheses are derived from the extrapolation of trends.

10.2.1.2 Driving forces

The main driving forces leading to socio-cultural tensions and disruptions in Europe are:

- the increasing dualisation of European society resulting from higher remuneration of capital than of labour as well as from larger segments of the European labour force excluded from the labour market;

- the growing (mainly uncontrolled) immigration from outside the EU;

- insufficient public policies related to education, social inclusion, multiculturalist approaches, enhancement of regional identities and heritage.

10.2.1.3 Context

The EU has difficulties in reaching a sufficient growth rate in a context of challenging globalisation and devotes most of its energy and resources in promoting and liberalising the economy while neglecting the social impacts of economic transformations as well as the socio-cultural constraints resulting from progressing immigration and exclusion. Within the EU member countries, various types of socio-cultural policies are carried out by the different administrative levels, the efficiency of which varies widely from country to country. The lack of real coordination between the various levels and the pressure put on the lower levels result in the fact that socio-cultural tensions and conflicts cannot be mastered.

10.2.1.4 Scenario process

After 2005, a number of trends observed during the decade starting in 1995 intensified, mainly in metropolitan areas. Social segregation progressed in inner-city areas and in peripheral housing estates accompanied by urban deprivation, homelessness, insecurity and criminality. Urban areas with high accessibility through public transportation (railway stations, crossings of subway lines etc.) became also subject to increasing insecurity. Degradation expanded around these areas, a factor which contributed to accelerate segregation. People sufficiently well off chose more and more locations distant from the most socially problematic areas. A large number of them working in inner cities moved to the surrounding rural areas and became long-distance commuters. Those who remained within or at proximity of these deprived areas were low income often aged people.

Numerous well-off retired people decided to move from large cities towards distant, attractive and climate-favoured rural areas or small cities. This trend accelerated after 2010 when large cohorts of baby-boomers reached retirement age.

Social differentiation of lifestyles increased and was accompanied by a qualitative differentiation of the image and endowment of areas with services and amenities. The better offs have shown higher mobility (work and leisure commuting, long-distance trips by car, train and plane) and stronger consumption patterns, not only of goods, but also more and more of all kinds of services in various fields (health, culture, leisure etc.). The number of private schools and hospitals strongly developed in such areas. Because of increasing insecurity in public transportation, a large number of people have been using their cars, even for short-distance trips and mobility of the less well off diminished.

The failure of public policies in including the socially disabled population of working age into the labour market generated a growing scarcity of manpower in a context of accelerating population ageing. The employment rate decreased strongly after 2010. Caring services for the elderly could not be sufficiently developed. In a context of growing dependency rate, the less well off among the elderly became strongly disfavoured in terms of caring services.

A strong competition developed for attracting young qualified people. In order to successfully match this constraint, numerous footloose enterprises moved towards areas and regions with a good image in terms of attractiveness and safety.

Until the mid 2010s, problems were mainly concentrated in metropolitan areas. Nevertheless, a number of regions were confronted with problems at a larger scale. Regions along the Mediterranean coast (Spain, France, Italy and to a lesser extent Greece) had to face more and more the cumulative effects of growing immigration flows from outside Europe (Africa, Middle East) and flows of European migrants looking for favourable climatic and environmental conditions. The first 'gated communities' had emerged in these regions before the year 2000. Their number significantly increased over time. In central and eastern Europe, the impact of immigration became more and more sensitive.

In the new member countries, the growing polarisation of economic activities in metropolitan areas generated strong increase in housing price, so that numerous people excluded from the labour market or with insufficient income to cope with growing costs of living in large cities moved towards distant small and medium-sized towns and rural areas. Insecurity in large cities had started increasing during the transition period. It continued growing because of larger numbers of marginalised people. The cities of central and eastern Europe were not excluded from these trends.

After 2015, xenophobia, cultural intolerance, racist attitudes, political radicalism had reached such levels that cohabitation between groups with different income levels, ethnic or religious origin became increasingly difficult. In the countries of central and eastern Europe, problems related to minorities became acute, with increasing tensions and radical attitudes. The problems of metropolitan areas propagated towards medium-sized and small towns. The number of gated communities boomed throughout Europe. Electronic control and security systems generalised and affected most segments of everyday life. Numerous re-education centres and jails were built to alleviate the feeling of insecurity. Tensions between cultural, ethnic and religious groups exacerbated in such a way that multiculturalist approaches became unrealistic and even counterproductive in the political sphere. Radicalisation of political attitudes worsened the situation. New forms of nationalism or 'communitarism' developed.

By 2030, European society was strongly divided and segmented. The new regulation processes which had become necessary to maintain a certain level of stability has severely

endangered democracy at various levels. Europe had moved towards a system of authoritarian governance which did not exclude a number of socially chaotic situations in numerous regions and cities.

10.2.1.5 Impacts

Macro-economic impacts

The failure in integrating the socially disabled groups of working age into the labour market has reduced the employment rate and has had strongly negative impacts on economic development. The shortage of qualified manpower has been a severe constraint with regard to the objectives of the Lisbon Strategy. A weaker economic situation had also indirect impacts on the provision of public services (health, culture, public transportation etc.), inhibiting growth in the service sector. Furthermore, the socio-cultural fragmentation of the European society and the rigidity of the new governance systems have been acting as significant obstacles to the exploitation of the 'territorial capital' of the various European regions, the success of which largely depends upon networking, exchange of information, cooperation, flexible attitudes, public-private partnerships etc.

Neglecting the enhancement of regional identities (culture, heritage etc.) has had detrimental effects on the economy also. The deterioration of urban areas, comprising the related infrastructure and facilities, has generated significant costs with long-term impacts.

Regional, territorial and environmental impacts

Territorial impacts of socio-cultural disruptions in Europe are stronger at the meso and micro levels that at the macro level. This does not exclude that the intensity of tensions and chaotic situations in a number of regions and cities may have large-scale impacts, for instance on the intensity of transnational migration flows within the EU.

Socio-cultural tensions and disruptions are favouring the move of people out of large cities and urban regions towards more 'socially quiet' areas (small and medium-sized towns, rural areas). This has been particularly obvious for retired people which are no more bound to their workplace. Other segments of the population have however also been concerned. An increasing number of active people have chosen to commute over long distances or to turn towards home-working. Pressure on attractive areas has been increasing because new forms of Greenfield settlements with more secure character could be developed. The suburbanisation trends also exploded in central and eastern Europe.

There have been significant negative environmental impacts from growing motor-car traffic, resulting from both substitution to increasingly insecure public transportation and stronger commuter flows. In cities, dereliction and multiple deprivation have significantly expanded.

10.2.1.6 Final image

By 2030, a number of components of the European territory have substantially changed. The territory is much more segmented and divided according to socio-cultural characteristics. Attractive rural areas have been invaded by various groups of people, in particular by retired ones and by an increasing number of home workers. Rural areas surrounding large cities have been affected by large flows of newcomers commuting to their workplace. All these groups have in common the search of a more secure and more friendly socio-cultural environment. A large number of gated communities have been developed and are scattered throughout the most valuable and attractive landscapes in tourist areas or at proximity of large and medium-sized cities.

The counterpart is the presence of large urban areas with multiple deprivation which have expanded because of the deterioration of the economic situation and of the departure of the most well offs, but also of medium-level income groups. Social segregation in urban areas is extremely accentuated and is reflected in very different townscapes, some being slums, other being well protected high-standing estates. Areas in between are unstable.

The environment has deteriorated, both in urban areas where dereliction has progressed and in attractive rural areas where settlements and transport infrastructure have strongly developed. Suburbanisation has significantly expanded at the expense of valuable natural areas near cities. Air pollution has increased as a result from more intensive use of motor-cars.

At a wider level, a number of regions with insufficient economic development resulting from low attractiveness, neglected territorial potential and regional identities (often offset by general socio-cultural tensions), are laying behind. Numerous of them could not catch up; so that the European situation in 2030 is one of increased regional disparities, when compared with that prevailing in 2005.

10.2.1.7 Main issues arising from the scenario

The scenario highlights the fact that Europe has come into a stage of its history where socio-cultural factors are gaining increasing importance and may have a leading and strategic role in future. Neglecting this dimension in the context of European integration is likely to generate significant socio-cultural disruptions which may be seriously detrimental to economic development. The potential territorial impacts of socio-cultural tensions and disruptions are numerous. Not only urban areas are affected, but also the surroundings of cities, attractive rural areas and, as a counterpart, less attractive regions.

10.2.2 Scenario 2: Towards a sustainable multicultural and socially cohesive Europe

10.2.2.1 Scenario hypotheses

The scenario is a policy scenario. It assumes that new public policies are defined and implemented at the various levels which aim at integrating as many people as possible into the labour market through education policies, at facilitating social cohesion through dialogue and tolerance between the various ethnic and religious communities, at promoting regional identities as factors of integration and development. It also assumes that the EU immigration policy will be better targeted and orientated towards attracting people with a sufficient level of qualification.

10.2.2.2 Driving forces

The main driving forces leading to the adoption of public policies as described above are:

- the increasing social tensions, troubles and criminality in a large number of European metropolitan areas related to the growing importance of marginal groups excluded from the labour market and from the mainstream society;

- the growing poverty and exclusion in the European society;

- the ageing of European society and the need to replace retiring people by a sufficient number of qualified people;

- the recognition of socio-cultural factors as essential for economic development and for the achievement of the Lisbon Strategy.

10.2.2.3 Context

The context which has made the emergence of new public policies in the field of socio-cultural integration possible after 2005 has been the growing awareness that the achievement of the Lisbon-Göteborg Strategy was not possible in a climate of growing social tensions and disruptions and of cultural intolerance. The challenge generated by population ageing and the related scarcity of qualified manpower was an additional argument to promote the integration of people excluded from the labour market and, more generally from the mainstream society. It was also recognised that the growing cultural heterogeneity in Europe resulting from immigration but also from the successive EU enlargements called for a positive multiculturalist approach.

10.2.2.4 Scenario process

Substantial changes in public policies in the years following 2005 resulted from the convergence of two main factors: the awareness that the increasing number of people excluded from the labour market was economically counterproductive and the growing exasperation of urban dwellers about increasing insecurity and criminality in cities. The resulting climate of xenophobia and political radicalisation in numerous European cities was considered as serious enough by the various national governments to envisage the strengthening of coordination of policies at EU level, together with the involvement of a higher amount of EU resources in activities the most likely to contribute to the solution of problems.

In the context of the open method of coordination, member states decided to give an absolute priority to education and training of those groups already marginalised or threatened to become marginalised, with a specific attention to young people (early school leavers with or without diplomas). An efficient system was set up which benefited from significant EU support and combined fellowships (conditioned to assiduity and success in learning), actions of awareness rising and civic education, repression of criminality always combined with education and/or vocational training measures, coaching of socially disabled people, in particular when entering into the labour market. Not only social workers and educators and teachers, but more and more retired people with a successful career in enterprises were involved in training and coaching actions of young and/or marginal people.

A great attention was paid to the maintenance of urban areas affected or threatened by multiple deprivation, addressing not only the physical aspect of the urban fabric, but also the endowment with services and facilities favouring social inclusion. Efforts were developed to support specific ethnic and religious cultures in a climate of tolerance.

A particular consideration was given to the promotion of regional identities in less prosperous regions in order to both promote the indigenous potential and regional capital of these areas and to counteract trends of xenophobia and racist/nationalist attitudes.

The governance of the strategy actively involved all levels from the municipal to the European ones. At EU level, in addition to the mobilisation of significant resources from the EU budget, transnational actions in the field of socio-cultural integration and promotion were developed and supported. The various EU polices in the field of culture, education and training, regional and local development etc. were more integrated and better targeted in

order to better correspond to the strategies developed at regional and local level. Networking of local experiences was developed. It contributed to strengthening the multiculturalist approach. The EU immigration policy changed substantially. While illegal immigration was more severely controlled, the (temporary or definitive) immigration of qualified people was favoured.

By 2015, the first significant results of the strategy could be observed. Criminality and insecurity in cities had generally decreased, a fact which contributed to weaken attitudes of xenophobia and racism/nationalism. Social stability could be improved in numerous European cities.

The promotion of regional identities in relation with the mobilisation of territorial potentials made the development of economic activities possible, also in disfavoured regions. The availability of qualified and motivated manpower enabled innovation and networking activities in line with the objectives of the Lisbon Strategy.

It was however after 2015 that the strategy proved to be the most useful. After the retirement of large numbers of people from the labour market, demand of qualified people increased significantly. Education, training and social inclusion activities which had been developed during the period 2005-2015 proved to be extremely fruitful. Not only enterprises benefited from them, but also the whole caring sector for the elderly.

In such a context, the reluctance of numerous Europeans with regard to further EU enlargements had been alleviated and negotiations with a number of new candidate countries could start, so that by 2030 the EU borders coincided more or less with those of the 'wider Europe'. This had only been possible because the Europeans and their governments and institutions had learned that continuous and intense activities of socio-cultural integration accompanied by a multiculturalist approach was an essential and strategic activity to ensure European development, integration and expansion.

10.2.2.5 Impacts

Macro-economic impacts

The strategy is based on the involvement of larger amounts of resources in the sectors of education, training, social inclusion, culture etc. As far as resources from the EU budget are concerned, savings in other sectors had to be made and more integrated and targeted approaches had to be developed. In the various member states, similar re-organisation of resource allocation had also to be carried out. Main constraints existed in the first years of implementation of the strategy. From 2010 onwards, return on investments was already significant in terms of savings of public resources for the unemployed and the socially disabled, the number of which had seriously diminished. The increase of the employment rate generated not only higher tax revenue for public budgets, but also stronger purchase power and more economic activities. The strategy contributed significantly to alleviate the shortage of qualified manpower which resulted from the emergence of large number of retiring people.

Regional, territorial and environmental impacts

At macro-level, the strategy contributed to reduce the volume of transnational and interregional migration flows which are often generated by economic as well as social factors. The fact that the strategy was strongly coordinated and promoted at EU level ensured high efficiency in the various European countries and regions, so that the potential increase of regional disparities was alleviated. This favoured slower concentration of people and activities in the Pentagon.

At meso-scale, within the various member countries, less people, in particular the retired ones, were inclined to leave the cities and to settle in distant rural areas. The spatial segregation of generations was alleviated.

Most positive impacts were to be observed at the regional/local level, especially in and around metropolitan areas as well as in less important cities. The expansion of deprived areas could be limited and the rehabilitation of a number of these areas was successful. The development of gated communities was contained and concerned only a limited number of sites attracting 'international clients' (tourist, retired people) in high-standing, highly attractive areas.

A relatively peaceful urban climate enabled to maintain compact cities serviced by public transportation and less dependent upon motor-cars. Pressure on surrounding open spaces and rural areas was limited as the progress of suburbanisation could be contained.

10.2.2.6 Final image

Through the implementation of the strategy, the European territory will have maintained by 2030 numerous characteristics it had in 2005. A number of changes will however have been caused by the structural evolution of the economy and of demography (provided no other perturbing events will have happened in between). Attractive rural areas are more densely populated than they were in 2005, especially in regions of southern Europe, due to population moves of retired people and of people in situation of working far away from cities. Cities are more lively with a clear cosmopolitan touch reflecting the success of integration policies. Social and cultural segregation has not completely disappeared, but is less visible. People with non-European origin have to a significant extent reached middle-class and even upper-class level, so that the areas where they are living have the character of specific cultural communities and do not, for the largest part, reflect poverty and deprivation.

A number of disfavoured regions have benefited from the promotion of cultural identities and developed their territorial potential in such a way that their competitiveness and resistance capacity in the context of globalisation have increased. They are no more marginalised territories.

10.2.2.7 Main issues arising from the scenario

The scenario highlights not only the benefits which may result from renewed and sustained socio-cultural policies in terms of economic development and social cohesion, but also the need to involved more the European level in such policies, both as a level of coordination between the various EU countries and as a provider of financial resources. With such an approach, undesired spatial evolutions are likely to be avoided and restrained.

10.2.3 ESPON core indicators related to the scenarios

- Households
- Household-oriented infrastructure
- Population growth
- Natural population growth
- Net migration rate
- Ageing/ Dependencies
- Reproduction potential
- Population in 'functional', 'strategic' age
- Total fertility rate
- Proportion of households with Internet access
- Proportion of households with broadband Internet access
- Population density
- Population by age
- Labour force
- Activity rates
- Unemployment rates
- Total employment
- Employment by qualification and profession
- Human capital
- Purchasing power indices