



Regional development studies

The impact of the development of the countries of Central and Eastern Europe on the Community territory



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The impact of the development
of the countries of Central
and Eastern Europe
on the Community territory

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Preface

Each year, the European Commission's Directorate-General for Regional Policy and Cohesion launches a number of studies in the field of regional policy and regional planning. These studies mainly aim at providing a basis for policy formulation internally, as well as the preparation of programmes and initiatives and a basis for analysing the impact of current or planned activities. The most interesting or innovative of these are published in a series entitled *Regional development studies*.

With this series, the Directorate-General hopes to stimulate discussion and action in a wider sphere on the research results received. The publication of the studies is addressed to politicians and decision-makers at European, regional and local level, as well as to academics and experts in the broad fields of issues covered.

It is hoped, that by publicizing research results, the Commission will enrich and stimulate public debate and promote a further exchange of knowledge and opinions on the issues which are considered important for the economic and social cohesion of the Union and therefore for the future of Europe.

Readers should bear in mind that the study reports do not necessarily reflect the official position of the Commission but first and foremost express the opinion of those responsible for carrying out the study.

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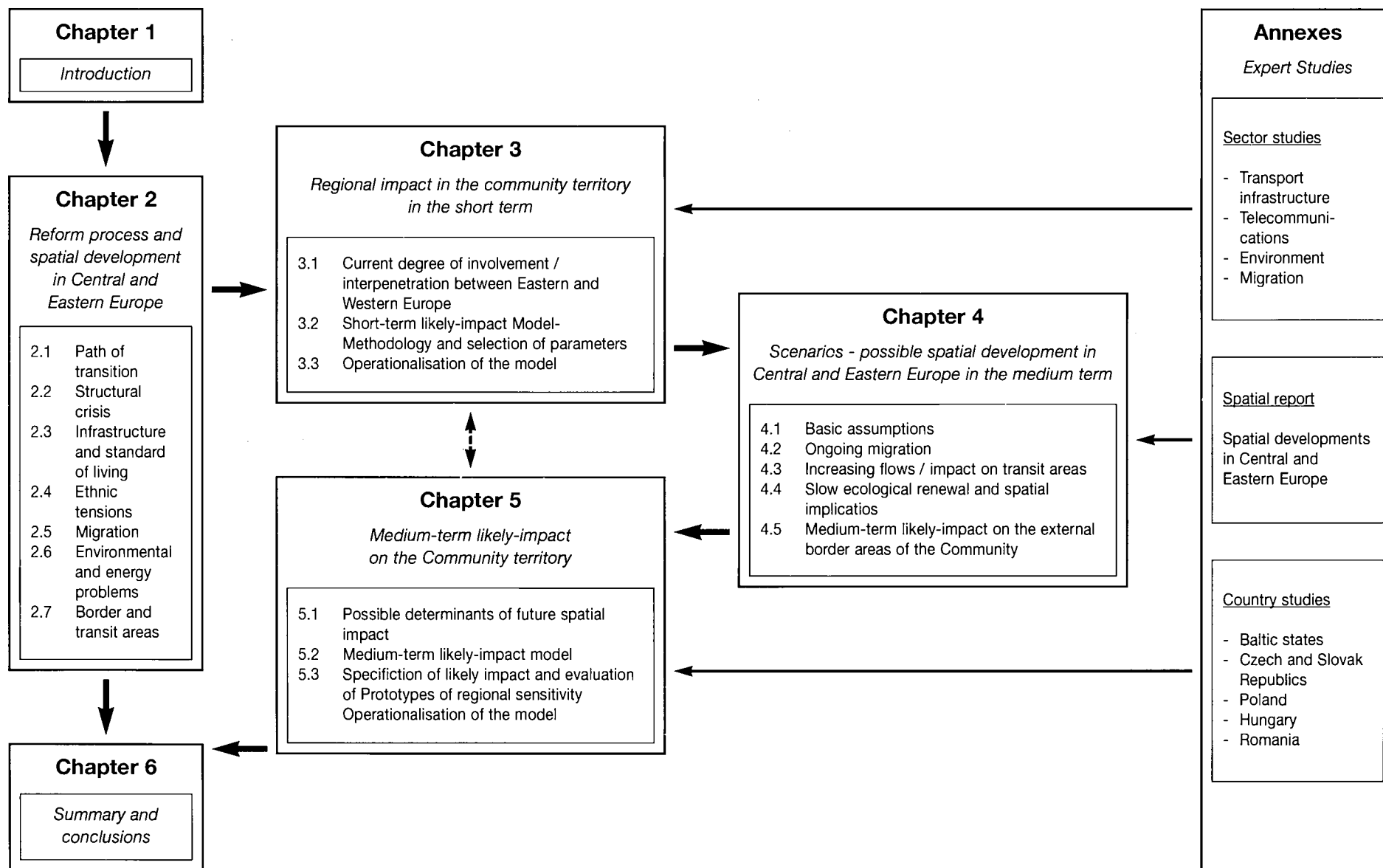
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Figure 1: Structure of Part I of the Study



1. Introduction

The process of reforms in Central and Eastern Europe represents an enormous challenge not only for those countries themselves but also for Europe as a whole. From a spatial perspective, the opening of the countries of Central and Eastern Europe and their step-by-step rapprochement to the Western industrial countries will create the opportunity of a growing together between East and West and of increasing the degree of interpenetration between individual regions.

The increase in the degree of interpenetration will benefit the various parts of the Community territory but not in the same way. While it will enable some regions to gain additional impulses for growth, it will compel others to increased adjustment pressure. The decisive factor determining what kind of effect will be produced is the response potential, i.e. the ability of the affected regions to react adequately to the new challenges.

It is true that the removal of the Iron Curtain and the introduction of measures for political and economic liberalization in the reformer countries have principally laid the ground for a further growing together between East and West, yet the large prosperity gap and the tremendous obstacles to development — such as the technology gap, infrastructural backwardness, ethnic tensions and serious environmental degradation, to mention just a few — are obstructing the smooth and speedy progress of interpenetration.

The following maps illustrate the present spatial situation in the Community and in Central and Eastern Europe (Maps 1 to 5). The basic indicators used, i.e. population density, demographic development, unemployment rates as well as accessible population in terms of goods traffic and

joint use of traffic means, show a highly inhomogeneous picture. They give an insight into the spatial problems and a first indication of the potential problem areas which will be analysed in the subsequent chapters.

It is the purpose of the present study to assess the possible developments in Central and Eastern Europe in the medium term (over a period of 10 to 15 years) and to derive possible consequences for the Community territory. Since neither ex-post nor trend analyses are feasible or making sense (all countries of Central and Eastern Europe are still in the process of transition) the scenario technique is used and the focus is put on the following questions:

- (i) What will Central and Eastern Europe look like spatially in the medium term?
- (ii) Will the countries of Central and Eastern Europe succeed in overcoming the obstacles to development and in exploiting existing potentials so that growth processes can be initiated?
- (iii) Are prospering regions expected to emerge and how will current crisis areas develop?
- (iv) Will migratory movements grow, decrease or change their direction?
- (v) Will the environmental conditions in Central and Eastern Europe change and what cross-border effect can be expected as a result?
- (vi) How will the flows of transport and traffic develop and which areas of Europe will be particularly affected?

On the basis of a so-called 'likely path of spatial development in the medium term' an analysis of the potential medium-term spatial effects on the Community territory is conducted, which focuses on the following questions:

- (i) What is the expected impact of the East European process of reform on the regions of the EC?
- (ii) How will this impact be spread, sectorally and spatially?
- (iii) Which EC regions will be affected most by the changes?
- (iv) Which parts of the Community will be equipped best to measure up to the new challenges, which regions, in contrast, are likely to fail?
- (v) Which parts of the Community may release additional growth impulses, which, in contrast, may come under additional pressure to adjust?
- (vi) What role will the (new) border and transit regions play in the European integration process?

To answer these questions a 'medium-term likely-impact model' was created operationalizing the

abovementioned decisive determinants, i.e. the degree of interpenetration and response potential. The findings from the application of this model are summarized in the form of a typology of spatial effects on the Community regions and illustrated with the aid of numerous maps.

The procedure applied in the course of research falls into the following steps:

As a first step, the regions of Central and Eastern Europe are classified according to selected key determinants. Then follows the identification of possible short-term effects on the Community territory which derive from the changing conditions and relations between the East and the West. In the following step a likely path of development in Central and Eastern Europe in the medium term is elaborated. The analysis of the medium-term likely impact on the Community territory — which is the central part of the study — is based upon this path. The aim of the analysis is twofold:

- (1) to identify prototypes of regional sensitivity in the Community (in terms of growth potentials, adjustment pressure, immigration, ecological conditions, traffic and transport, etc.); and
- (2) to draw conclusions concerning the spatial consequences caused by the process of interpenetration (see Figure 1).

Database and problems

The analyses for Central and Eastern Europe are based on the empirica Regional Monitor which contains some 200 variables for 28 countries and 155 regions of Central and Eastern Europe and data series of 1990-92 which are continually updated. Sources for data are:

- official statistics,
- surveys,
- expert network.

However, owing to the great differences in the manner in which statistical data are compiled and utilized in the East and the West, there is the problem of availability, reliability and comparability of data which greatly hampers statistical analyses and interpretations. To give an idea of the difficulties encountered, here are a few samples of Eastern statistical divergencies from Western standards:

Samples of Eastern statistical divergencies from Western standards

Population

There are no disaggregated figures on foreigners. The age group classification differs (15 to 59 years old as against 15 to 64 in the EC; in Poland three age groups exist; Yugoslavian figures are extrapolated from the 1980 census).

GDP

GDP has now replaced the former net material product. But comparable data in national currency are available for Poland, the Czech Republic and Slovakia, Hungary, Romania and Bulgaria only since early 1993; none are available for the Baltic States, the Commonwealth of Independent States (CIS), Albania, former Yugoslavia.

Employment by sectors/ industries

Formerly the division was by productive and non-productive sectors (see supplementary sheet and empirica sectoral adjustment model (SAM)). Agriculture and manufacturing comprised a considerable number of services. Regional data are scarce for the Czech Republic and Slovakia, Hungary and Bulgaria, there are almost none for the CIS.

Employment figures by individual industries are available only rarely (from Romania, and to a very limited extent from Hungary).

Environment

There are differing measuring concepts and measuring instruments for SO₂, NO_x and CO_x. The definition of nature parks and the like differs and regional data are not available.

Unemployment

Registration of unemployment has only just started in Romania and Bulgaria. The unemployed showed little interest in registration since no benefits were paid in the beginning. Disaggregated figures on female unemployment were not available until late 1992 (with the exception of Poland, the Czech Republic and Slovakia).

General problems

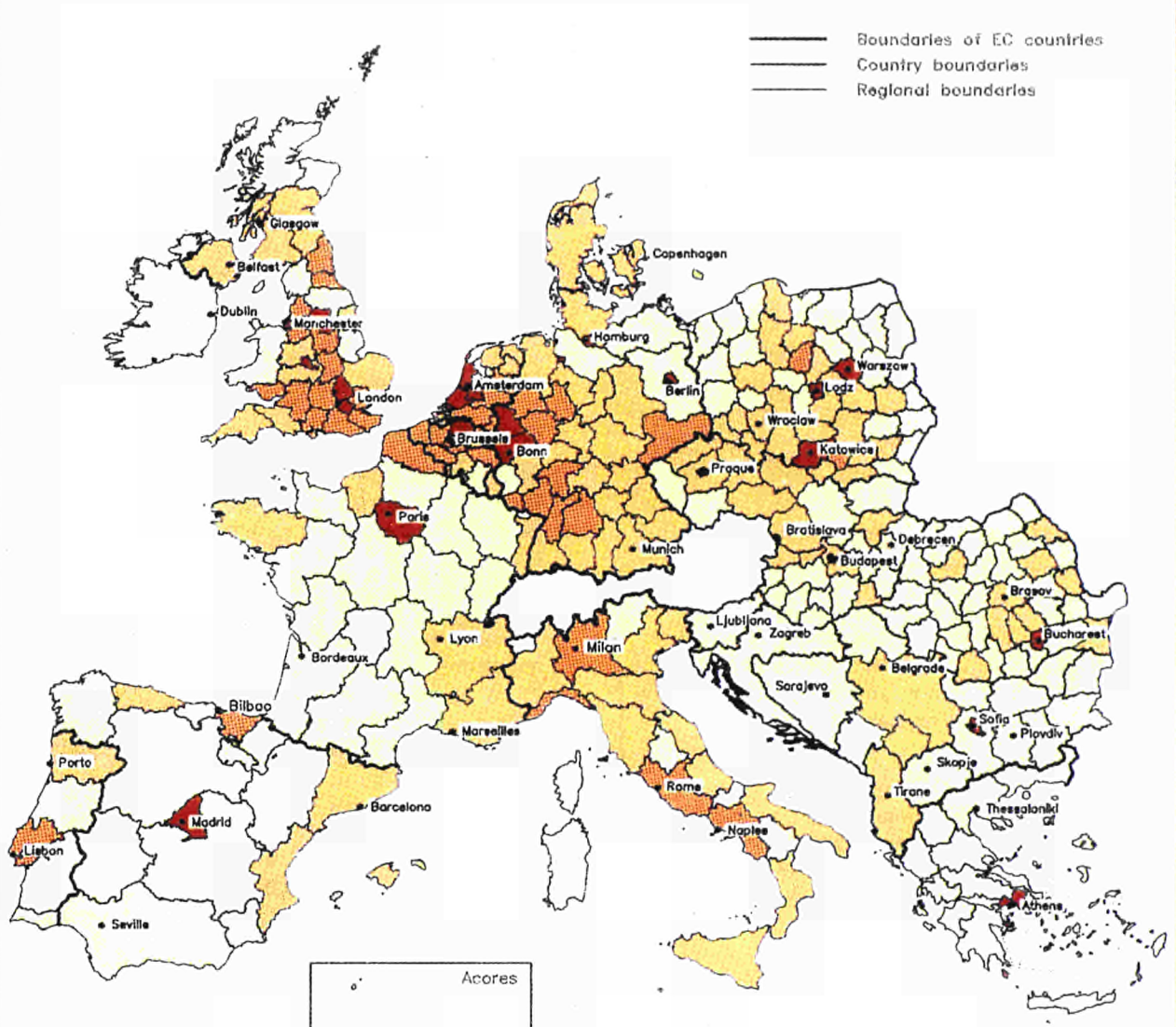
Statistical data come forth very scarcely from the Baltic States, Albania and in particular from the CIS. All that have been available were used in the text, tables and maps.

To date few data have been published in these countries. In the CIS, no published figures are available at the level of the republics let alone regions. No regionalized data are available from the Baltic States. Where data are available they are often not very reliable: in Poland, for instance, data are available rather abundantly, but many, especially at regional level, are estimates.

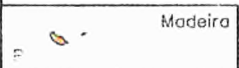
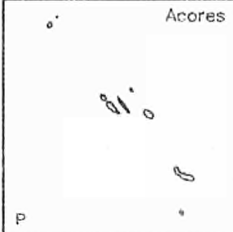
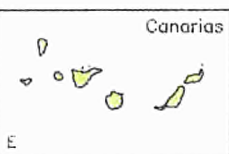
In the light of these difficulties it is not surprising that frequently expert opinions and qualitative assessments of recent origin give a much better insight than time series or trend analyses. In order to get as realistic a picture as possible of the spatial developments in Central and Eastern Europe, all statistical data have therefore been checked against and supplemented by recent expert opinions (from empirica's network of experts in all parts of Central and Eastern Europe, see also Annex reports: empirica 1992a, b, c, 1993a, Kuklinski 1992, Antanavicius 1992, Schuller 1992, Santos 1992, Fleischer 1993).

Map 1 Population density

Landes
kunde
und
Raum
ordnung

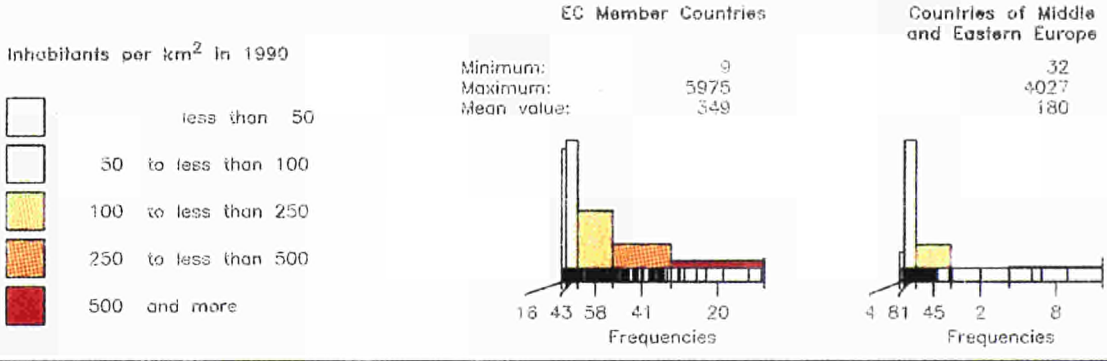


— Boundaries of EC countries
— Country boundaries
— Regional boundaries



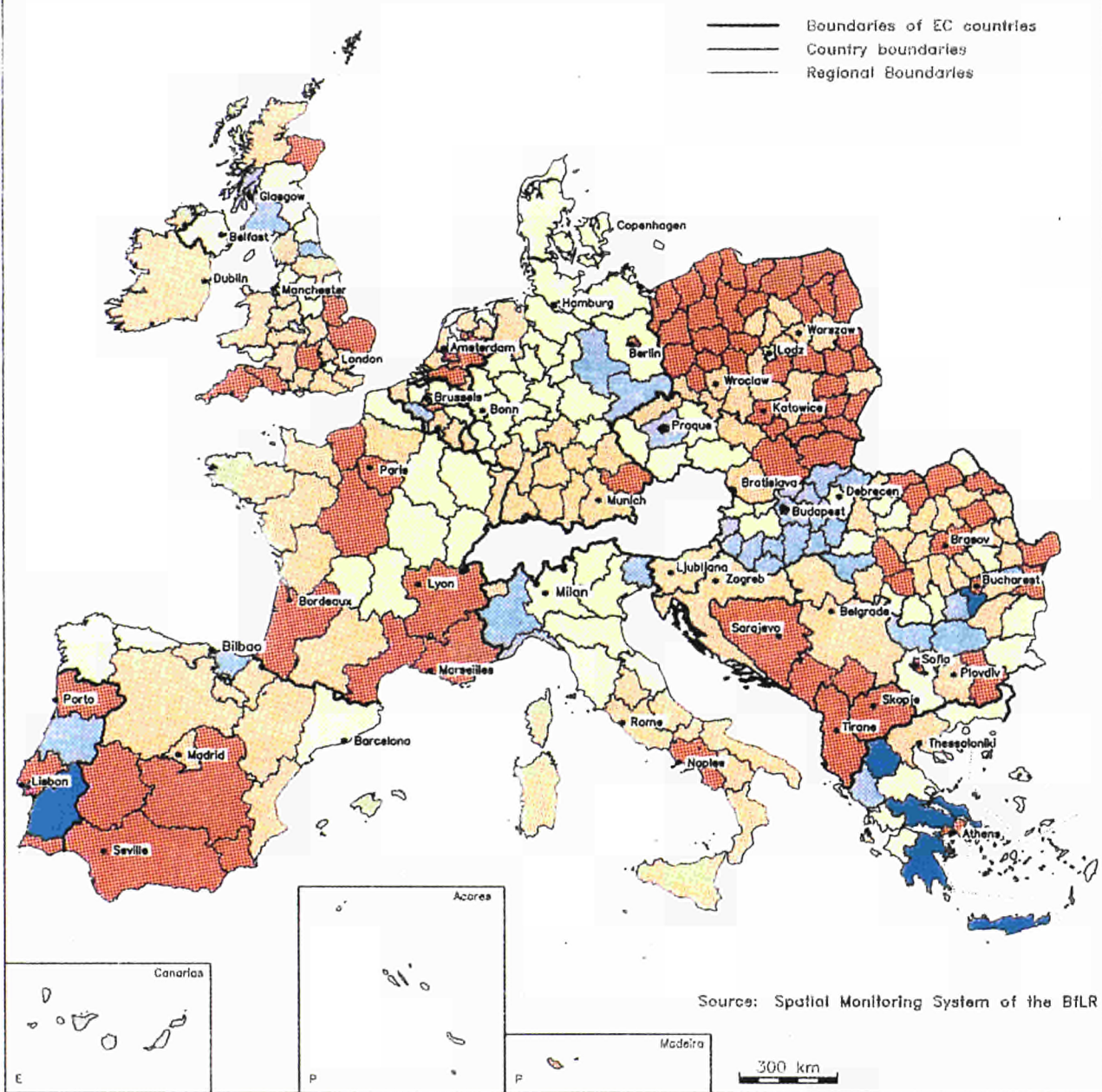
Source: Spatial Monitoring System of the BfLR

300 km



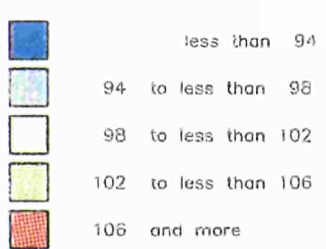
Map 2 Development of population

Landes
kunde
und
Raum
ordnung



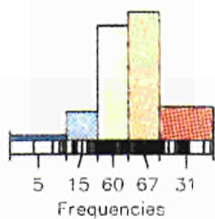
Source: Spatial Monitoring System of the BfLR

Development of population 1980 – 1990
(Index 1980 = 100)



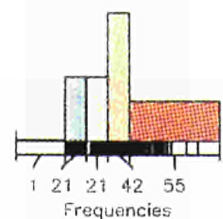
EC Member Countries

Minimum: 86.7
Maximum: 113.0
Mean value: 102.5



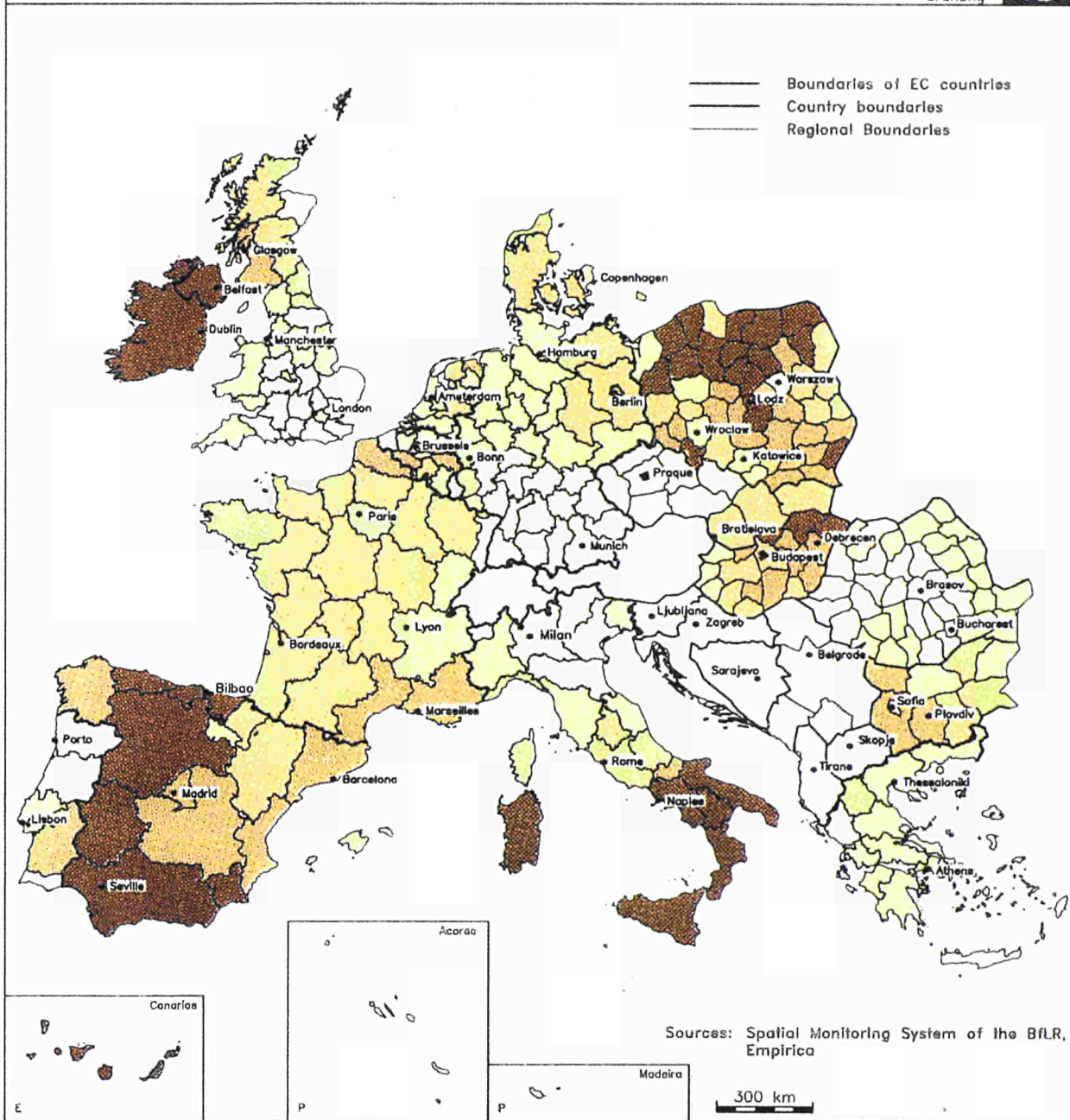
Countries of Middle and Eastern Europe

Minimum: 84.9
Maximum: 122.8
Mean value: 104.2



Map 3 Unemployment rates

Landes
kunde
und
Raum
ordnung

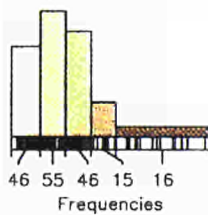


Share of unemployed persons in persons in employment 1990 as percent (New German Länder: January 1991, Eastern Europe: share in persons in working age 3. Quarter 1992, Romania and Bulgaria at 2. Quarter 1992, Hungary at 31.10.1992)

- no data available
- less than 5
- 5 to less than 8
- 8 to less than 11
- 11 to less than 14
- 14 and more

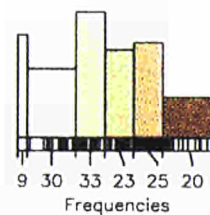
EC Member Countries

Minimum: 1.5
Maximum: 25.4

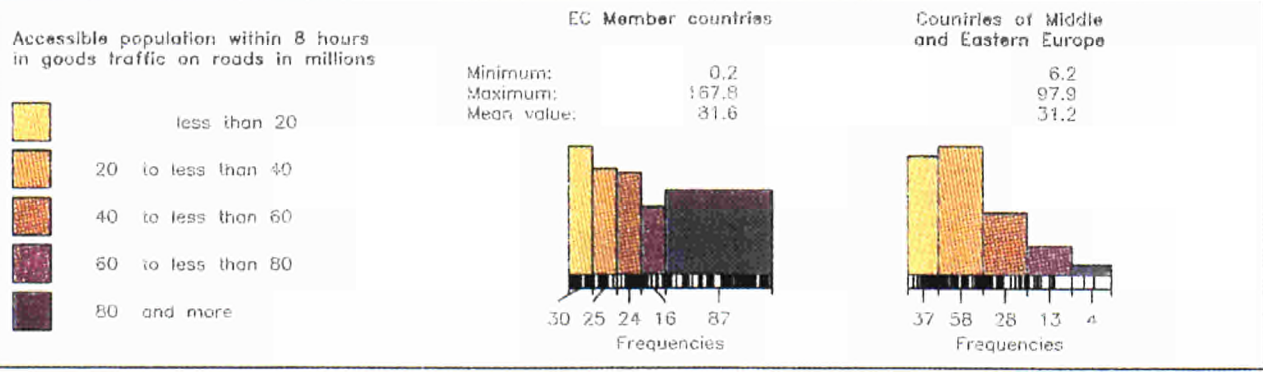
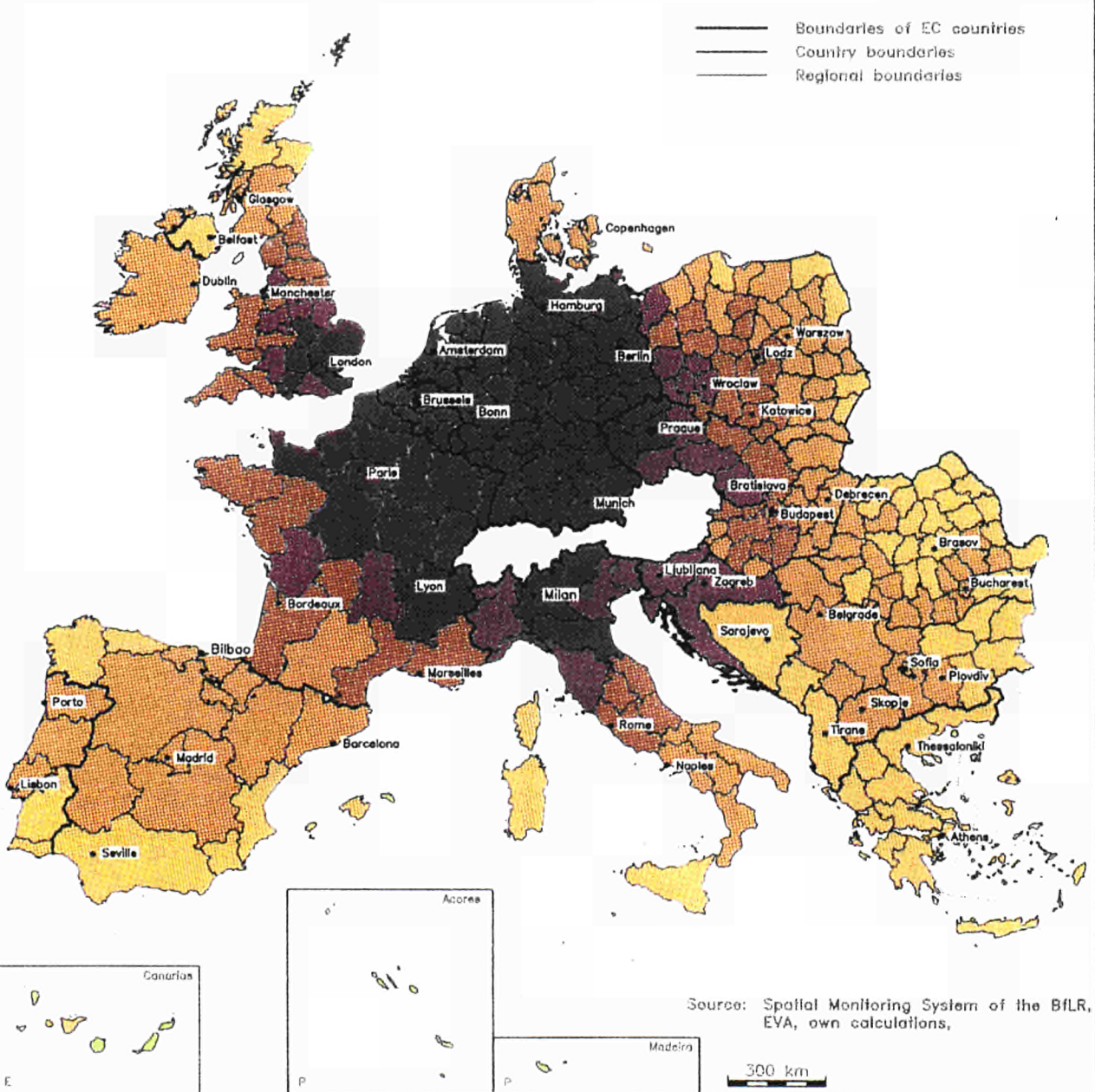


Countries of Middle and Eastern Europe

0.3
19.7

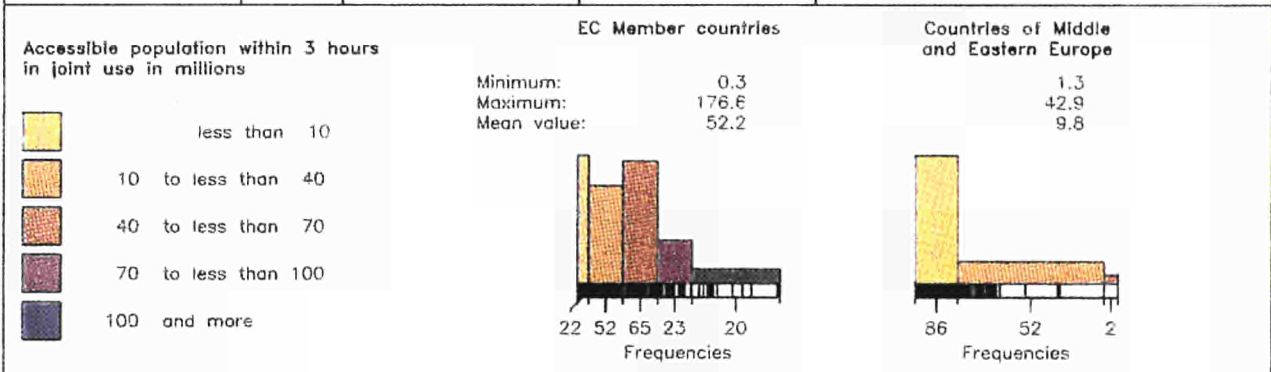
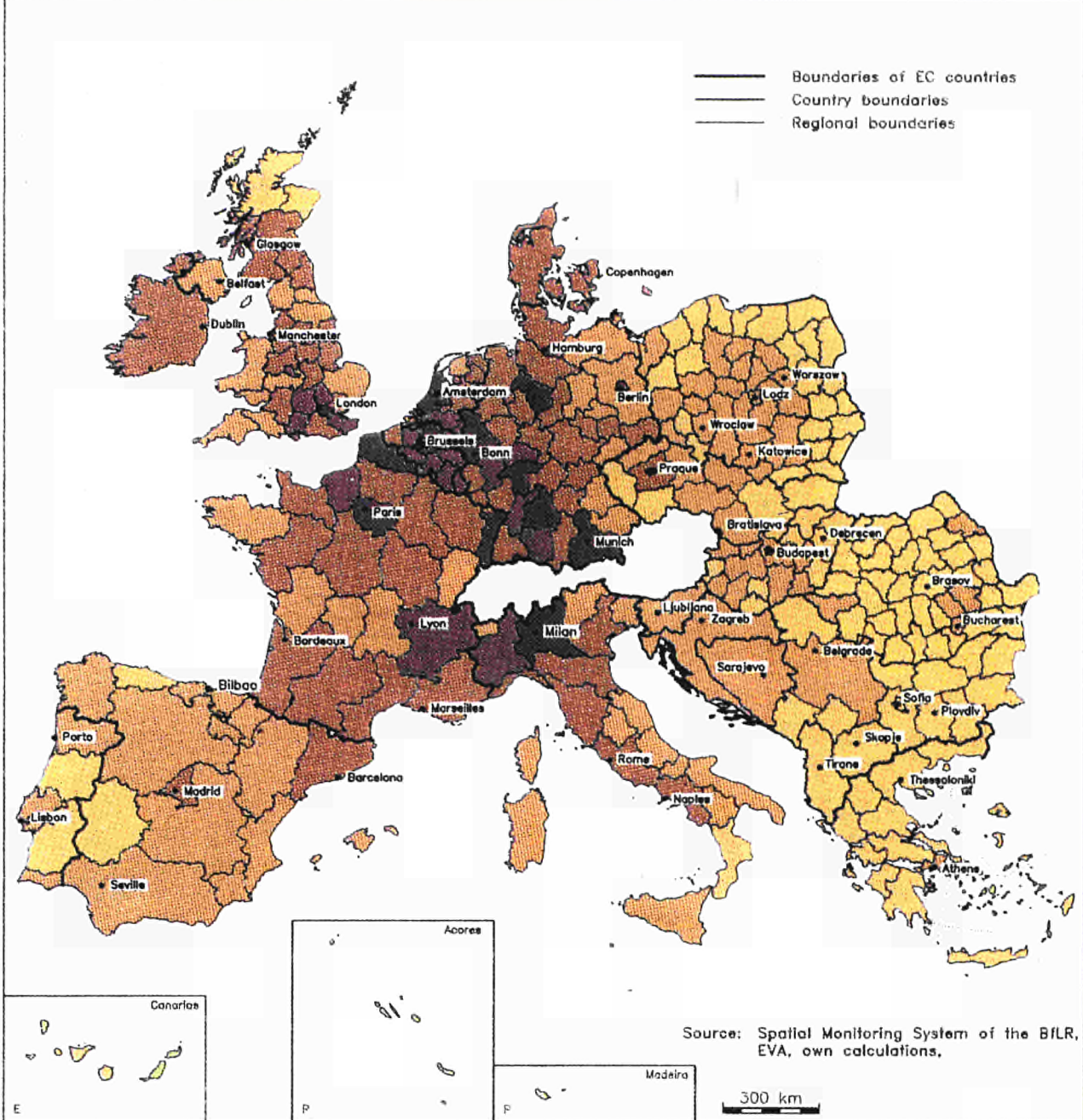


Map 4 Accessible population in goods traffic



Map 5 Accessible population in joint use

Landes
kunde
und
Raum
ordnung



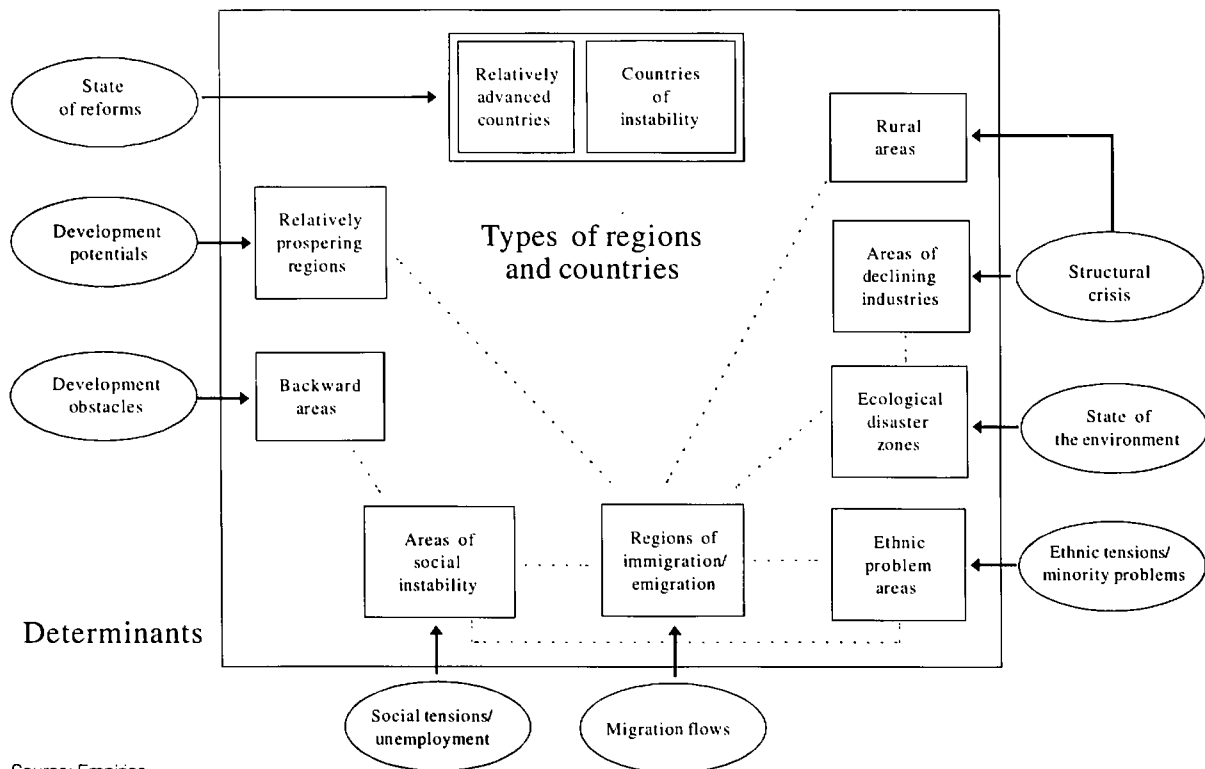
2. Reform processes and spatial development in Central and Eastern Europe

The transition from a centrally planned economy to a social market economy is proving to be a difficult and lengthy process in all parts of Central and Eastern Europe. While at the beginning of the reform processes there was a great deal of optimism that the countries would rapidly catch up with the West in terms of prosperity and economic strength, it is now giving way to a more sober and realistic assessment. This is not surprising considering that all countries of Central and Eastern Europe are in a more or less deep recession, experiencing huge slumps in production, rising

unemployment, galloping inflation and a growing burden of debt. Apart from the economic difficulties many countries are faced also with increasing separatist trends which means that there is an enormous potential for political and social conflict.

At the same time there are, in fact, substantial differences between the individual countries as regards the scale and efficiency of the reform measures and socioeconomic development. Hungary and Poland, for instance, are already showing the first signs of 'slow progress'. In the Czech

Figure 2: Determinants of spatial development and regional prototypes



Source: Empirica.

Republic there are also indications of recovery from economic decline, although the so-called 'velvet divorce' will entail a host of new political, legal and economic problems. Others like the CIS countries, Baltic States, Albania, in contrast, must contend with growing political, social and ethnic tensions.

However, profound differences in the restructuring process are apparent not only between the individual countries of Eastern Europe, but there are also wide disparities among the regions within the countries themselves.

The countries and regions of Central and Eastern Europe are analysed in terms of the level of reforms, the spatial dimension of structural crises, the infrastructural, environmental and energy situation, and of migratory movements (see Figure 2). The chapter concludes with a discussion of development potentials and obstacles in the different regions of Central and Eastern Europe which could be the decisive factors in shaping the future of these regions and are therefore a key to anticipating the effects on the Community territory.

2.1. Path of transition in Central and Eastern Europe — Between instability and slow progress

Present economic situation

Three years after the beginning of the reform processes the countries of Central and Eastern Europe are still suffering economic crisis even though the situation has been stabilizing slightly in several countries (the Czech Republic, Hungary, Poland, Slovenia) (see Table 1a, 1b and 1c).

GDP fell further between 1990 and 1991 (by between -7% (Poland) and -30% (Albania)). Only Poland was able to avoid a greater drop in GDP in 1991 than in the previous year (-11.6%). Unemployment soared in all countries with highest unemployment rates in Albania, Croatia and Poland. All countries have experienced rapid monetary devaluation. In 1991 consumer prices soared particularly in Romania (344.5%) and Bulgaria (333.5%). Poland was able to stem the hyperinflation it experienced in 1990 (249.3%) by means of a stringent fiscal and monetary policy and was the only country to achieve a slight increase in real wages (+0.8%), but with inflation of over 60% it is still far from attaining its objective of 'monetary stability' (see Table 1). (OECD 1992a,

OECD 1992b, OECD 1992c, OECD 1993a, EC 1992d, EC 1992e)

The macroeconomic situation in 1992 was as follows: GDP continued to decline in most countries with the exception of the Czech Republic and Slovakia (which witnessed an increment of +15% in the first quarter of 1992)¹ (see Table 1a). Unemployment continued to increase over the year 1992. In the third quarter Bulgaria, Poland and Hungary recorded the highest unemployment rates with 16.8, 13.6 and 12.7% respectively (leaving Albania, 70% in June 1992, and Croatia, 17.6% in May 1992, out of consideration). The lowest unemployment rate was registered in the former Czech Republic and Slovakia with an aggregate 5.2% which was attributable to the very low rate of approximately 3% in the Czech Republic. Incidentally, the Czech Republic was the only country in which unemployment decreased in 1992 compared to the previous year (1991: approximately 4%) (see Table 1c). Inflation was stemmed successfully in 1992 in the Czech Republic and Slovakia, in Hungary and Poland. In June 1992 the inflation rate was 6% (the Czech Republic and Slovakia), 19.6% (Hungary, January to June) and 39% (Poland). In Bulgaria and Romania, it is true, inflation was also curbed substantially compared to the previous year, but rates of 112.8% and 222.0% respectively still represent conditions far from monetary stability. In all other countries of Central and Eastern Europe inflation continued to soar in 1992 (see Table 1c).

Table 1a: Growth rates of GDP, 1990-92

Country	GDP — Growth rates (percentage change)		
	1990	1991	1992
Hungary	-5.0	-10.2	-
Poland	-11.6	-7.0	-
Czech Republic			
Slovakia	0	-16.0	15.0 (first quarter)
Bulgaria	-11.8	-22.9	-
Romania	-7.4	-13.0	-
Slovenia	-8.3	-12.7	-
Croatia	-10.2	-23.4	-25.0 (March)
Albania	-13.1	-30.0	-11.0 (June)
Estonia	-3.6	-10.8	-30.0
Latvia	-0.2	-7.9	-30.9 (June)
Lithuania	-5.0	-12.8	-35.0 (June)
Russia	0.4	-9.0	-14.0 (first quarter)
Ukraine	-3.0	-10.0	-18.0 (first quarter)

Source: OECD 1993a, EC 1992e.

¹ No data are available for Hungary, Poland, Bulgaria, Romania and Slovenia.

Table 1b: Level of GDP, 1991

Country	Total GDP 1991 (million ECU)	GDP per head 1991 (ECU)
Hungary	24 690.4	2 308
Poland	62 415.0	1 753
Czech Republic and Slovakia	26 459.2	1 729
Bulgaria	6 345.0	705
Romania	23 493.3	1 054

Source: OECD 1993a, empirica.

Table 1c: Unemployment and inflation, 1990-92

	Unemployment rate				Consumer price index compared to previous year		
	1990	1991	1992	1992 (third quarter)	1990	1991	1992
Hungary	1.7	8.5	10.1 (June)	12.7	28.9	35.0 (Jan.-June)	19.6
Poland	6.3	11.8	12.6 (June)	13.6	249.3	60.3 (June)	39.0
Czech Republic/ Slovakia	1.0	7.0	5.0 (July)	5.2	10.0	58.0 (June)	6.0
Bulgaria	1.7	10.2	12.5 (May)	16.8	21.6	333.5 (Jan.-June)	112.8
Romania	-	2.9	5.4 (May)	7.8	-	344.5 (Dec.'91/Aug.'90)	222.0 (Jan.-May)
Slovenia	6.9	10.1	10.8 (May)	-	550.0	118.0 (Jan.-July)	277.0
Croatia	9.2	15.4	17.6 (May)	-	710.0	222.6 (Jan.-June)	484.3
Albania	8.6	50.0	70.0 (June)	-	-	-	-
Estonia	-	-	0.7	-	17.2	260.0	1 156.0
Latvia	-	-	1.6 (July)	-	10.5	172.2 (June)	700
Lithuania	-	-	1.1 (June)	-	8.4	224.7 (June)	1 000.0
Russia	-	0.1	0.2 (March)	-	5.0	90.4 (Jan.-June)	875
Ukraine	0.0	0.0	0.0	-	4.0	84.0 (first quarter)	775.0

Source: OECD 1993a, EC 1992e.

Foreign trade

All Central and East European countries are at present subject to strong adjustment pressures. The main reasons for this lie in the dissolution of Comecon trade, in technological backwardness and the fact that the countries and regions are structurally ill-equipped to face competition.

With the collapse of Comecon trade a large part of the previous supply networks also disappeared. Although the former Soviet Union was the most important trading partner for all Central and East European countries until 1989, only a fraction of

their former exports now go to the former Soviet Union and their imports from there have greatly decreased too, which since the almost complete disappearance of barter transactions and of the transfer rouble as the unit of account, must now in principle be paid for in hard currency.² The consequences are clearly visible in the external trade figures of the Republics of the former Soviet Union which decreased by about one third between 1990 and 1991 (exports from ECU 83.04 billion to ECU 56.16 billion; imports from ECU 96.56 billion to ECU 54.56 billion), a decrease which is to a large extent attributable to the countries of Central and Eastern Europe (DIW 42/92).

The figures are very conspicuous in the field of energy. Russian crude oil exports, for example, dropped by 11% in 1990 and by about 25% in 1991, exports of mineral oil products decreased by 9% and of natural gas by 2% in 1991. Exports of coal went down by a noticeable 27% in 1991 while exports of electric power remained more or less the same.

According to official statistics, energy exports of the successor States of the former USSR continued to fall in the first half of 1992: crude oil by 18% and natural gas by 4%. This trend is said to affect mainly intra-CIS trade and the exports into the former Comecon countries (DIW 42/92).

The greatest drop in trade with the former Soviet Union has been seen in Poland. In the first half of 1991 exports to the former Soviet Union were down by 67% compared with the same period in the previous year. Yet trade with the former Soviet Union also dwindled in the other former Comecon countries: in Bulgaria it fell by 58%, in Hungary by 55%, in the Czech Republic and Slovakia by 47% and in Romania by 27%. (OECD 1992a, *Wirtschaftswoche* 22.5.92).

These decreases in exports could be partially compensated by new trade with Western industrialized countries — above all with the EC. All Central and Eastern European countries have recorded increases in external trade with the Western industrialized countries. Table 2 shows that, with the exception of Romania, all of them have succeeded in raising their exports to the EC since 1989. Poland recorded the largest growth rate with 36.8% between 1989 and 1990 while in 1990-91 the former Czech and Slovak Federal

² Due to the scarcity of foreign exchange in the countries concerned barter transactions are still carried out, especially between the Baltic States and the CIS (refrigerators for raw materials).

Republic (CSFR) was in the lead with a 45.8% increment compared to the respective previous periods. Imports, too, from the EC to most Central and East European countries (excluding former Yugoslavia and Bulgaria) increased in the period 1989-91, some considerably. The highest growth rate was recorded by Romania which doubled its imports from the EC in 1989-90, but has witnessed a slight decrease since. Poland's imports from the EC showed a continuous increase, reaching 25% between 1989 and 1990 and 59.6% between 1990 and 1991, and so did the Czech Republic and Slovakia with 22.0 and 31.2% respectively (see Table 2).

Compared to 1989 the ECs importance as a trading partner has thus increased susceptibly for the majority of the countries of Central and Eastern Europe. For some countries, though, notably Bulgaria and Romania, the situation has not changed so profoundly. For them their partner countries in the former Comecon, above all the former USSR, have remained the most important trading partners by far (see Figure 3).

Table 2: Trade flows between the EC and Central and Eastern Europe, 1989-90

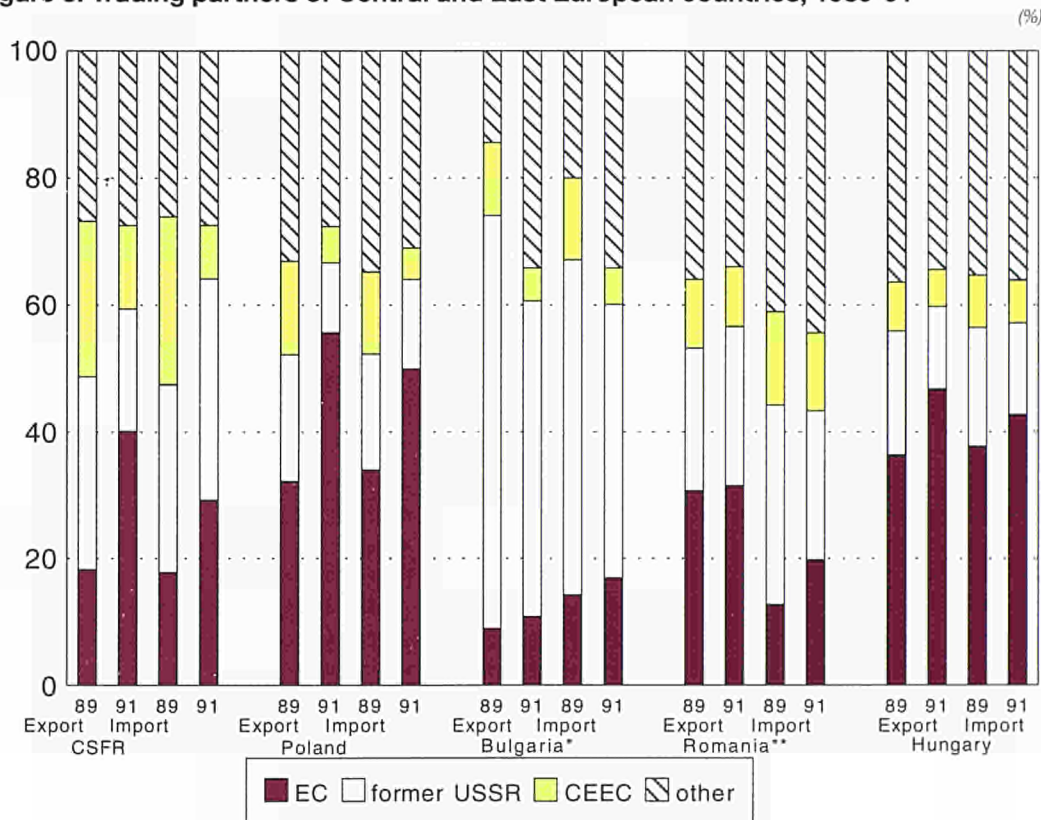
(million ECU)

	Exports into the EC			
	1989	1990	1991	I/1992
Former Yugoslavia	6 997	7 684	7 487	1 688
Lithuania				24
Former Soviet Union	15 166	16 749	18 477	3 553
Poland	3 858	5 278	6 212	1 619
Czech Republic and Slovakia	2 558	2 786	4 061	1 252
Hungary	2 587	3 004	3 625	951
Romania	2 548	1 617	1 467	307
Bulgaria	531	593	752	203

	Imports from the EC			
	1989	1990	1991	I/1992
Former Yugoslavia	7 031	8 521	6 776	1 498
Lithuania				12
Former Soviet Union	12 603	13 614	14 229	3 370
Poland	3 945	4 934	7 876	1 756
Czech Republic and Slovakia	2 385	2 909	3 817	1 233
Hungary	2 988	3 220	3 486	903
Romania	689	1 415	1 331	343
Bulgaria	1 477	1 034	1 033	235

Source: Eurostat 8.9.1992.

Figure 3: Trading partners of Central and East European countries, 1989-91



* EC trade only Germany, Italy, UK and France/CEECs trade only Romania, Poland, Hungary.

** EC trade excluding Luxembourg/CEECs trade Albania, Bulgaria, CSFR, Poland, Hungary.

Source: Empirica Regional Monitor.

Trade balance and foreign debt

A serious problem for most countries is the low level of export surpluses or even adverse balance of trade and the high level of foreign debts (see Table 3). Poland managed to reap an external trade surplus of ECU 0.72 billion in June 1992, the largest among the countries of Central and Eastern Europe, but its indebtedness is dramatic: its foreign debt stood at ECU 35.52 billion in 1991. Russia's foreign debt which has steadily risen since 1990 to ECU 34.72 billion in 1992 is equally tremendous (see Table 3).

Structural crisis

The stronger orientation towards the West and the opening up of domestic markets to international trade has placed Eastern enterprises under great pressure to adjust. More than ever before are they being forced to measure up to the criteria of international competition. Past 'advantages' — such as massive energy and raw materials subsidies, fixed delivery and purchase obligations between individual production locations and the redistribution of profits between State-owned enterprises — have now largely ceased to apply.

Table 3: Trade balance and foreign debt, 1990-92

(billion ECU)

	Trade balance			Foreign debt		
	1990	1991	1992	1990	1991	1992
Hungary	0.2*	0.2*	0.5* (May)	17.0	18.2	17.3 (April)
Poland	1.8*	0.1*	0.7* (June)	37.3	37.5	-
Czech Republic/ Slovakia	-0.6	0.7	0.2 (first quarter)	6.5	7.4	7.3 (first quarter)
Bulgaria	0.6	0.0	0.2 (first quarter)	8.0	9.1	9.6 (April)
Romania	-1.4	-1.1	-0.6 (June)	0.2	1.5	2.6
Slovenia	-0.5	-0.2	-0.2 (June)	-	1.4	-
Croatia	-1.2	-0.3	0.2 (June)	-	2.1	-
Albania	-0.1	-0.2	-	0.3	0.4	-
Estonia	-0.1	-0.1	0.0 (June)	-	0.3	-
Latvia	-0.2	-0.2	0.0 (June)	-	0.6	-
Lithuania	-1.6	-0.1	-	-	0.8	-
Russia	1.9	5.8	0.4 (June)	30.4	32.1	34.7
Ukraine	-0.8	1.6	-	-	-	-

* In convertible currency.

Source: OECD 1993a, EC 1992e.

In view of the great technological backwardness in Central and Eastern Europe many enterprises are still not competitive, as shown by the examples on the following page, and many products are of low quality and/or are not targeted to market needs.

A special problem is presented by the conversion of the armaments industry. The former Warsaw Pact armaments strongholds in the Slovak Republic and in the Ukraine, where up to 85% of local jobs depended directly or indirectly on the armaments industry, are particularly badly hit.

In 1990 just under 30% of Poland's crude steel was still produced in outdated Siemens-Martin plants, a procedure that was replaced by more modern processes years ago in Western Europe because of high energy consumption (FAZ 1991). A considerable part of the machine stocks in the textile industry is outdated. Approximately 72% of textiles machinery in the Czech Republic and Slovakia has already been written off. This branch of industry is poorly mechanized and automated and productivity is very low (FAZ 1991). In the former Soviet Union only 15% of oil refineries meet Western standards. With energy yields at around 60-65%, the efficiency of gas production is extremely low in comparison to the Western standard of 85-90%. In addition enormous amounts of raw materials (30-40%) are lost during transit (Merrit 1991).

In the agricultural sector unresolved legal and ownership questions form a serious barrier to production in many countries.

In Romania, for example, the announcement in February 1991 that producer cooperatives were to be privatized engendered great legal uncertainty and large areas of land were not cultivated. For the first time since World War Two, Romania even had to import wheat in order to guarantee supplies to the population. Food exports were temporarily banned. The situation is similar in the CIS. Unresolved land and ownership questions — effective reform of the agricultural sector is still needed — and the drastic deterioration of the price-cost-ratio contributed to the collapse of agricultural production. In 1990 imports of wheat to the value of ECU 2 billion and meat to the value of ECU 1.6 billion were necessary to meet at least the basic requirements of the population. Bulgaria, too, is at present not in a position to supply its domestic population with food itself. The main problems are in the processing industry, with meat production falling by half in the first half of 1991 compared to the previous year as a result of a lack of imports of animal feedstuffs (AGRAR-Europe 25/92).

Even in Hungary, Poland, the Czech Republic and Slovakia, the agricultural sector is in a state of crisis. Hungarian food exports have increased by more than 30% in 1992 in comparison to the previous year, but falling domestic demand on the one hand and rising input prices on the other have widened the price-cost gap for agricultural products and led to immense adjustment pressure on the sector. A similar development is true of Poland and the Czech Republic and Slovakia. Thus, in the Czech Republic and Slovakia approximately 12% of arable land was to be left fallow in 1992 and cattle stocks greatly reduced (AGRAR-Europe 25/92).

In Albania dramatic consequences were triggered by the land reform which provided that 80% of the land and livestock of the State cooperatives was to be allocated to the farm workers. Each family obtained between 0.5 and 3 ha depending on the region. However, since there was a tremendous shortage of seeds and a serious lack of capital, equipment and knowhow (which still persists) at the beginning of 1992, almost 80% of the farm land was left uncultivated resulting in a drop of the self-sufficiency rate to 10%! The population was almost entirely dependant on food aid from abroad (Reuter 1992).

As a result of the socialist division of labour which led the regional economy to be heavily dependent on just one or a few industries, some regions are particularly hard hit by this structural crisis. This includes monostructural industrial regions in which mining and heavy industry prevail (Lodz and Katowice in Poland, Martin in Slovakia, Plovdiv and Lovec in Bulgaria, Brasov and Sibiu in Romania, etc.) as well as rural areas where the industrial and service sectors are scarcely developed at all (e.g. areas in North and South Moldova and in south-eastern Bulgaria bordering on Turkey).

Progress on the path of reform

Some fundamental reforms have now been implemented in all countries of Central and Eastern Europe, including:

- (i) dismantling of price controls (apart from a few exceptions);
- (ii) liberalization of external trade;
- (iii) creation of favourable conditions for foreign investors.

The Czech Republic and Slovakia have carried out the most extensive process of dismantling price controls (energy prices represent the only exception). In contrast, Romania only plans to complete

price reform at the end of 1993. There are now no import or export barriers in Bulgaria, which thus has the most liberal regulations governing external trade in Central and Eastern Europe. In terms of legal frameworks for foreign investors, the foundations (permission for up to 100% foreign participation in companies, free repatriation of profits in foreign exchange) have been created in all of the countries. The Czech Republic and Slovakia have refrained from introducing a separate law on foreign investment which means that foreign and domestic companies are *de facto* treated as equals (for more details see Annex, Table 1).

However, there are clear differences between the individual countries as regards those reforms which are difficult to implement due to both technocratic and political obstacles. This affects the following areas:

- (i) privatization of State-owned companies and land;
- (ii) currency convertibility;
- (iii) reform of the banking system and creation of a free capital market.

Although, in view of the current economic situation all countries are confronted with enormous problems in implementing these reforms (strikes and opposition from workforces to the privatization plans or to the redundancies linked to these plans, inflation and currency depreciation, high indebtedness of the national banks and budget deficits), some have already made some progress and launched concrete measures.

In the Czech Republic and Slovakia privatization of small-sized companies made a good start in early 1991, the so-called 'large privatization', i.e. the division of large State-owned enterprises was launched in May 1992 with the allocation and sale of interim certificates (so-called vouchers) to the public. By the end of 1992 about 30% of the shares of some 1 400 large enterprises had been sold in this way (under the voucher system).

Also in Hungary the privatization process has made considerable progress, yet the privatization of the large-scale enterprises is still pending. In 1992 the private sector already contributed an estimated 33% to the GDP (1991: 25%).

In Poland the privatization of the approximately 8 000 large-scale enterprises is progressing only slowly. According to the plans of the government about half of these enterprises should be privatized by the end of 1994 (EC 1992e).

Moreover, in these countries preparations have been made for currency convertibility and for the creation of a free capital and foreign exchange market. In the Czech Republic and Slovakia a free foreign exchange market has existed between the banks since August 1992 and first steps have been taken to set up a stock exchange in Prague. Also Hungary has made considerable progress towards liberalizing the capital market. A securities market already exists in Poland (for more details see Annex, Table 1).

In contrast, the reform measures are proceeding slowly in Slovenia, Croatia, Bulgaria and Romania and there is a relatively high degree of legal uncertainty.

Slovenia has made ambitious plans for the speedy privatization of a large number of State-owned enterprises, but their realization is in abeyance since the necessary legislation has not been passed yet. In Croatia the privatization process has only just begun. In May 1991 a new law on privatization was passed which provided that 3 600 State-owned enterprises should be privatized by June 1992. Some 1 000 enterprises have so far tabled privatization plans. The other 2 600 enterprises have been placed under government supervision and restructured, and shall be privatized by a later date to be fixed yet (EC 1992e).

Bulgaria despite some spectacular steps (such as the full liberalization of foreign trade, see above) provides a rather unstable picture.

Against the background of the country's enormous political, economic and social problems, the Bulgarian Government in a policy statement of 30 December 1992 outlined the current situation and the outlook for the reforms. According to the statement the greatest problems are: the adverse balance of payments (caused by the drastic decline of exports after the dissolution of the Comecon), growing unemployment, soaring inflation, a high crime rate, the wretched social situation of pensioners and disabled people (the average real pension has dropped by more than half since 1990), the inadequate protection of domestic producers against imports and the slow progress of privatization.

To ease the social tensions, to stem the growing instability in the country and to prevent the governmental and public structures set up so far from crumbling, the government announced the launching of a number of measures which include several democratic reforms and in particular speeding-up of the land reform (it is planned to distribute about 50% of the State-owned land by the end of 1993), removal of administrative and legal obstacles to privatization, moderately protectionist measures in

favour of agriculture and other sectors, health reform, development of a social security system and measures to protect ethnic and religious minorities (press release by the Bulgarian Government 1993). However, no time schedule has been set up nor have any concrete concepts been worked out yet for the implementation of the reform measures (except for land reform).

In Romania, as in Bulgaria, there is a very bureaucratic and inefficient administrative system, which makes the implementation of reforms considerably more difficult than in other countries of Central and Eastern Europe.

Laws already passed by the Romanian Government are not being implemented (e.g. a law on the reform of the banking system was agreed in April 1992, yet the banking sector is still comparatively underdeveloped); as regards the provisions on privatization, foreigners are not entitled to purchase land unless they are a legal entity engaged in joint ventures.

The privatization of the agricultural land has been practically completed with some 82% of the land allocated to private owners (in late 1992). Moreover, some 50% of the residential buildings and about a third of the retail trade business were privatized by mid-1991 and early 1992 respectively. Privatization of large-scale enterprises, on the other hand, is only just beginning. It is planned to privatize about 6 200 enterprises representing about 55% of the capital of State-owned enterprises.

The Baltic countries and the CIS are just beginning to implement reform measures: many plans have been repeatedly postponed or suspended (e.g. dismantling of price controls, agrarian reform, etc.). The same is true for Albania where a programme to privatize State-owned industrial enterprises was worked out but where the acute economic problems (at least 50% of the State enterprises have stopped production) have so far curbed any concrete steps towards creating market conditions.

The most important measures taken in Albania concern the reestablishment of democratic basic frameworks such as a party system and the freedom of the press. In the course of land reform the land of the State cooperatives has been reallocated except a residual 20% which is planned to remain State-owned, but there is a shortage of seeds, technologies and know-how.

Even though one cannot speak of genuine economic progress, the prerequisites for future

growth in Hungary, the Czech Republic, Slovakia (at least in the Czech Republic) and Poland seem to be better than in the other countries. The political situation is less unstable and, in terms of the legal and administrative frameworks, the countries have already made great progress towards creating market economic systems.

This assessment is confirmed by a survey of experts, who put Hungary in first place in the table of reformers, ahead of the Czech Republic, Slovakia and Poland. Bulgaria is in fourth position ahead of Romania (5th place) and the Baltic States (6th place) (empirica, *Wirtschaftswoche* 16.10.1992).

Foreign investment

An indicator of relative political and social stability is the scale and the development of foreign investments in each country.

Leaving the new German *Länder* out of consideration, Russia, Hungary, the Czech Republic, Slovakia and Poland are the countries preferred by Western investors. Between September 1991 and September 1992 they attracted 516 out of 719 investment projects which equals almost two thirds (72%). In terms of volume this is ECU 12.24 billion or 55% of the total value (see Figure 4).

The USA is far in the lead as an investor in Central and Eastern Europe including the former Soviet Union, engaging in 219 projects and investing a total of almost ECU 6.4 billion primarily in oil and natural gas. In second place behind the USA and ranking well ahead of other West European countries is Italy which has taken this leading position in Europe through several large-scale investments in oil, natural gas and car production (Fiat alone has commissioned ECU 1.6 billion in Poland). In the next places follow the United Kingdom, Germany and France. These five countries account for 68% of all investment projects and for more than 83% of the appropriated funds (Figure 5).

Joint ventures remain the most favourite form of investment accounting for about half of all foreign investments in Central and Eastern Europe. Almost 50% of all investment goes into oil and natural gas projects (ECU 10.56 billion) concentrating on Kazakhstan (ECU 4.8 billion by British Gas, ECU 1.28 billion by the Government of Oman/Caspian Pipeline, ECU 1.2 billion by US-Chevron/Tenizchevron) and Russia (ECU 2.5 billion by US-Conoco/Polar-Lights project), then fol-

low investments in the automobile industry (ECU 4.1 billion) and in mining (ECU 1 billion). (see *Handelsblatt* 6.1.1993).

Thus, whilst some countries — above all Hungary, but also the Czech Republic and Poland — could cautiously be regarded as relatively advanced countries, the other countries are on the whole still a long way from achieving political and social stability: Bulgaria and Romania due to structural paralysis and the existing networks of old communist cadre in the political system which are here still more deeply entrenched than elsewhere; Albania due to its catastrophic economic situation; the Baltic States due to their very heavy dependence on the former USSR (e.g. in the energy sector and manufacturing); and the CIS due to a great measure of political instability and to reluctant reforms (e.g. in Russia but also in other States like Lithuania).

2.2. Spatial dimension of the structural crisis

Problem regions with predominantly agrarian structures

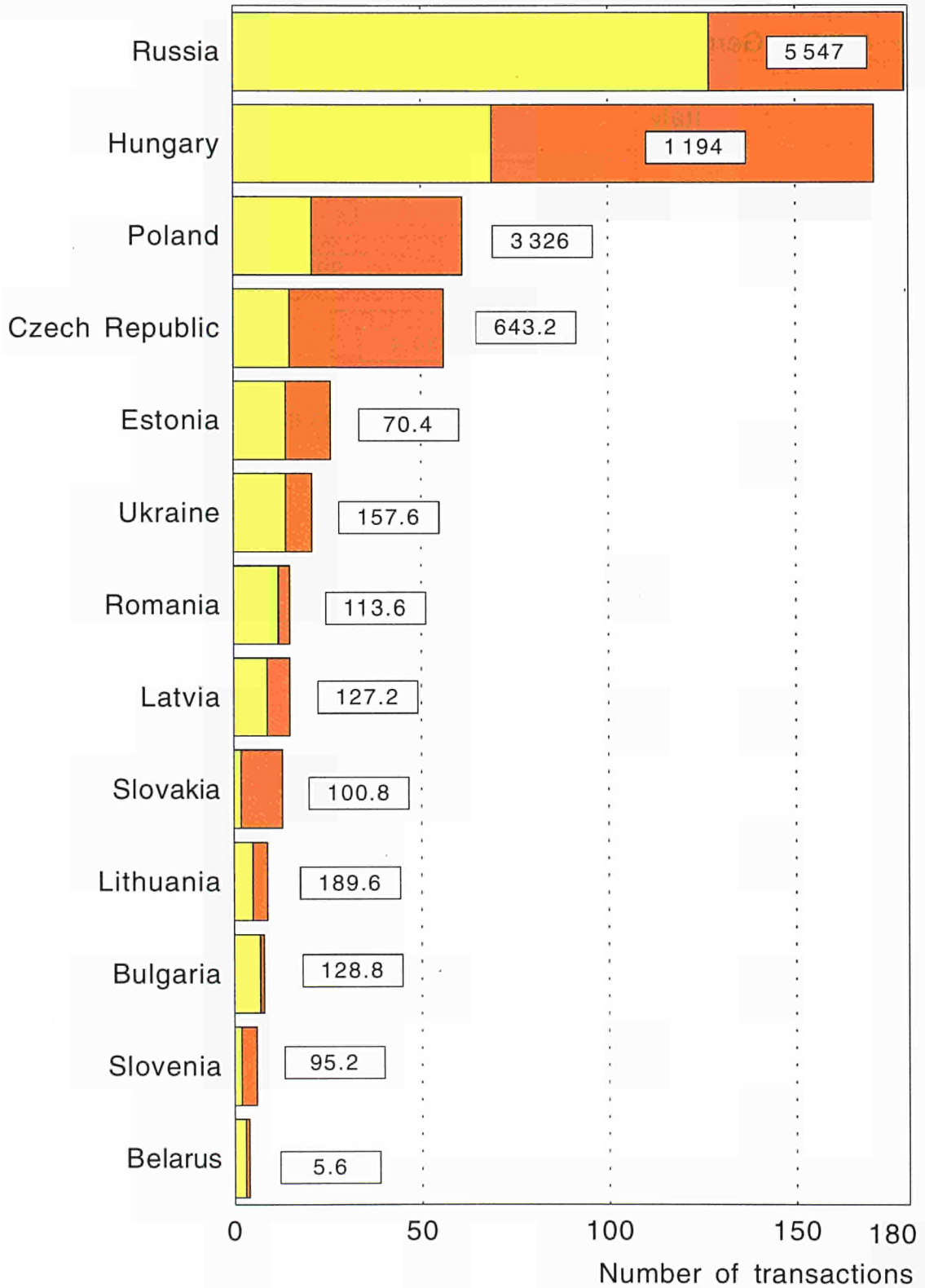
In many parts of Central and Eastern Europe the regional importance of agriculture is disproportionately high. Looking at the level of agricultural employment one should take into account, though, that in some countries there are considerable differences between the concepts 'employees' and 'economically active persons' as criteria in agriculture, as is evident from the following diagram (see Figure 6).

In many countries the importance of the agricultural sector and hence dependency on it is particularly pronounced in the peripheral regions which lends a supra-regional dimension to the crisis concerning agrarian structures. If one uses the indicator 'share of employees in the agricultural sector as percent of total working-age population',³ as a criterion for regional sensitivity, then in Romania the regions on the southern and south-eastern peripheries (border regions to Bulgaria) and the north-western parts (border regions to Hungary) are the most affected areas. In Bulgaria, the northern parts of the country on the border to

³ For Map 6 the indicator 'share of employees in agriculture in total working-age population' was used to show the potential extent of future sensitivity (unemployment or underemployment of the self-employed).

Figure 4: Countries of destination of private investment in Central and Eastern Europe, 1991/92

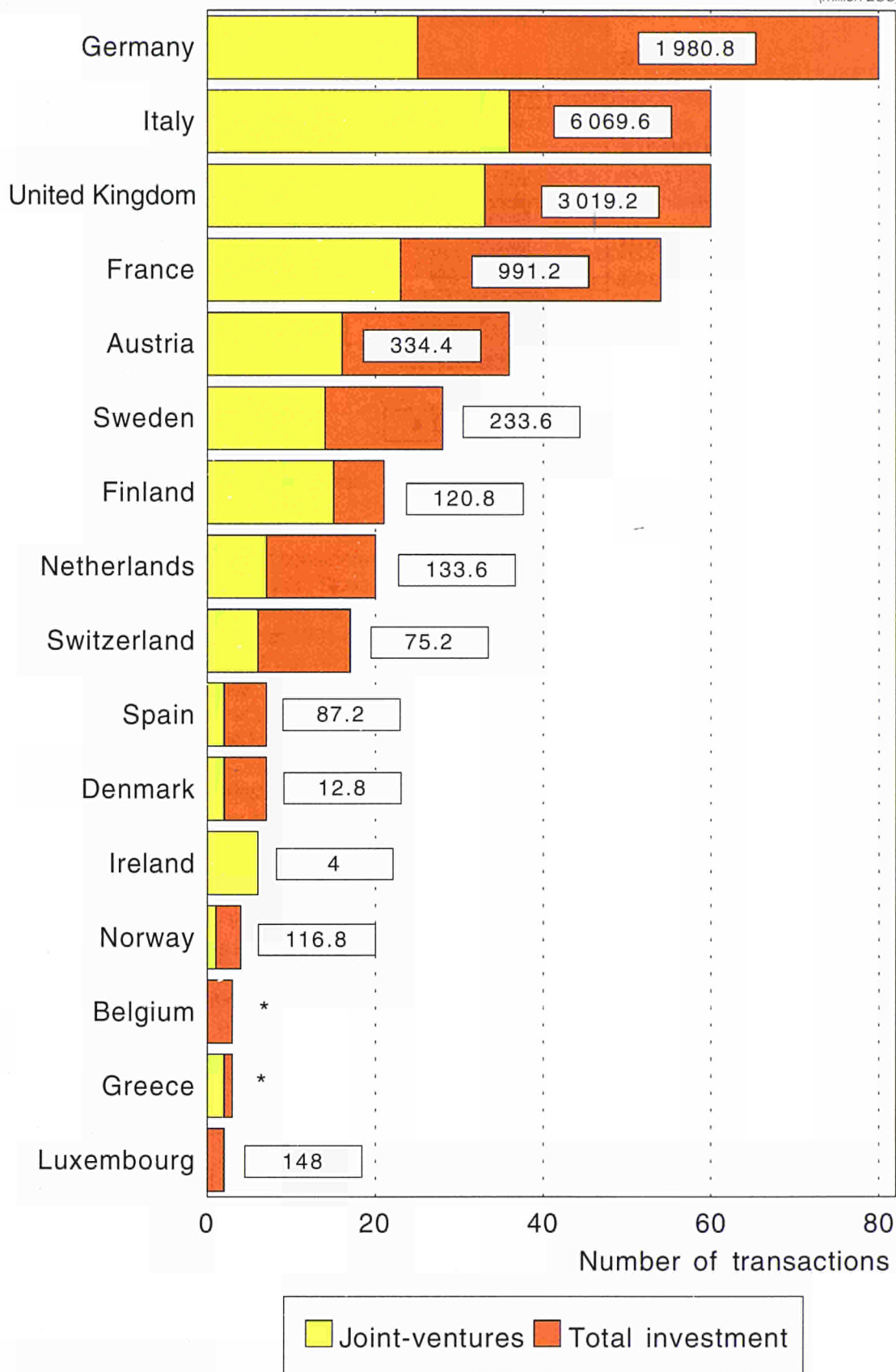
(million ECU)



Source: Handelsblatt 6.1.1993.

Figure 5: Countries of origin of private investment in Central and Eastern Europe, 1991/92

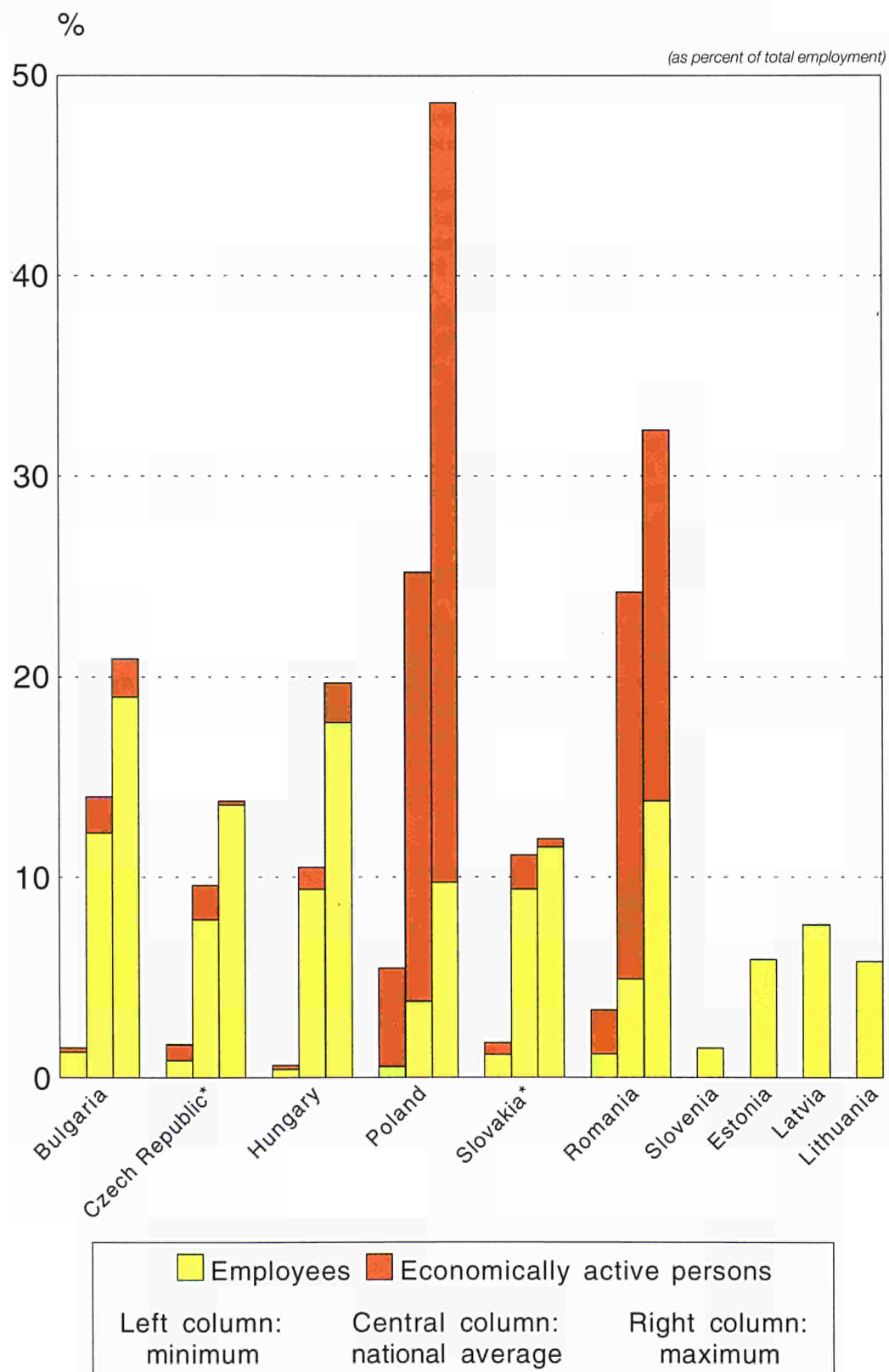
(million ECU)



* No data available.

Source: Handelsblatt 6.1.1993.

Figure 6: Employees and economically active persons in agriculture 1990



* Data on economically active persons only for former CSFR available.

Source: EC 1992b, empirica Regional Monitor.

Romania and the border regions to Turkey as well as the region of the former Yugoslavian Republic of Macedonia bordering on Greece are particularly dependent on agriculture (see Map 6).

Using this concept it must be noted, however, that the current economic problems of the rural population are not reflected to the full extent.

In Romania, for instance, the average size of each private farm has fallen to 2 ha due to the partially-implemented privatization of the agricultural sector which has led to a significant deterioration of the income situation of the peasants.

In Bulgaria, the working conditions of the Turkish minority, situated in rural areas of south-eastern Bulgaria, are extremely unfavourable: since they are excluded (so far) from the land reform and have no possibility of purchasing land, they are forced to lease land at high rents which further worsens their economic position, poor as it is. This has already led to a huge wave of emigration of Bulgarians of Turkish origin from south-eastern Bulgaria.

Hungary and Poland also show a clear centre-periphery gap in terms of the proportion of employees in the agricultural sector. The most affected regions are northern Poland and the north-western regions of Poland bordering on Germany, which show an above-average dependence on the agricultural sector, as do eastern Hungarian regions bordering on Romania and southern regions of Hungary on the border to Croatia.⁴

In the Czech Republic and Slovakia, on the other hand, there is no clearly identifiable centre-periphery gap. While it is true that the Slovakian border regions to Hungary and Ukraine are dominated by agriculture, the northern region (north Moravia, central Slovakia) bordering on Poland is definitely industrially orientated with such industrial locations as Ostrava.

In Albania of all the countries of Central and Eastern Europe, agriculture has the largest share in total employment with 33.8%, and holds an important position throughout the country apart from the major towns (Tirana, Shkodër, Durrës) and several industrial locations.

Map 6 shows that there are considerable regional differences not only in terms of the relative importance of agriculture (measured in employment share) but also in terms of the land use. Expressly

⁴ If the indicator 'share of agriculture in total employment' is used, then also other regions show a strong dependency on the agricultural sector, especially the eastern parts of Poland with a dependency of up to one third of the population (EC 1992b).

agriculturally dominated areas where agricultural land accounts for more than 65% of the total area are found in southern and eastern parts of Romania as well as in central parts of Hungary and Poland while, for instance, in the Sofia region and Plovdiv as well as in central Slovakia the share of agricultural land in total area is very low (minimum: 8.8%). In a major part of the regions the proportion of arable land and permanent grassland — which is an indicator of the intensity of land use and/or of the soil quality — is between 1 and 8%. Eastern parts of Bulgaria show a remarkably high share of arable land and at the same time a relatively low share of agricultural land in total area, which is indicative of the very intensive land use in these regions.

Monostructural industrial regions

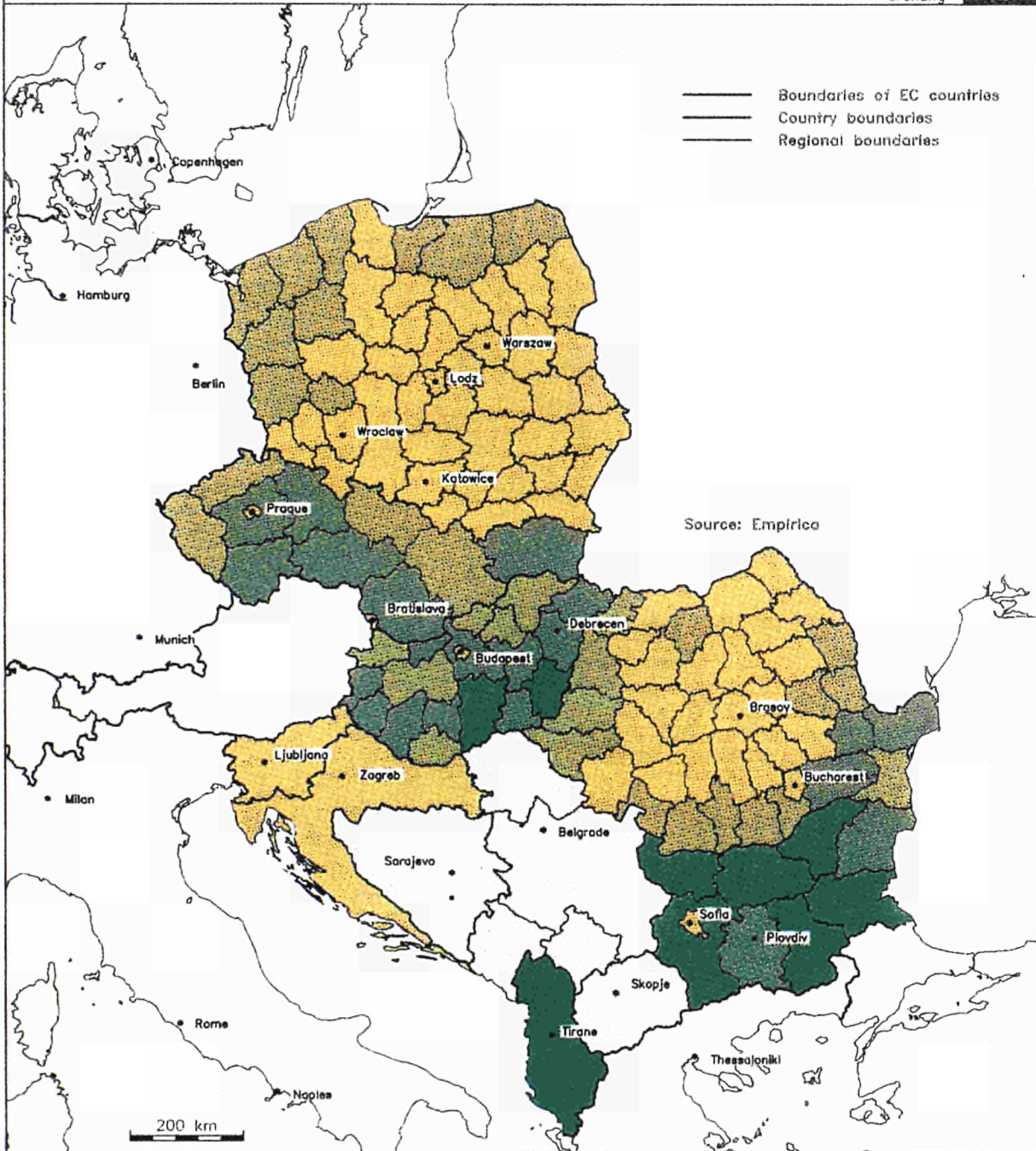
All countries in Central and Eastern Europe have a considerable need for restructuring and modernization in the industrial sector. This is especially true of mining and heavy industry, although all other branches of industry are also under pressure to adjust. Regions where economic activities concentrate on just one or a few industries are most affected by this adjustment pressure. No employment figures exist for the individual branches of industry at the regional level. An indicator of the degree of concentration of manufacturing industries is formed by the ratio of employees in manufacturing to the total employees in industry⁵ (see Map 7).

The iron and steel regions in Poland (Upper Silesia and Krakow), and in Hungary Komárom, Nógrád, Baranya and Borsod are traditional industrial regions with most employees working in coalmining and in the iron and steel industry. Regional focal points are also represented at present by locations in northern and eastern Hungary, where large industrial complexes in the petrochemical industry and in mechanical engineering became established, predominantly producing for Soviet needs in the past. (For base map see Annex, Map 1: Regions of Central and Eastern Europe).

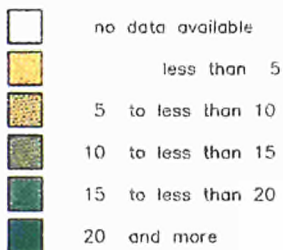
The largest industrial centre in the whole of Central and Eastern Europe (Ostrava) is in north Moravia: two thirds of employees work in iron and steel production. Northern Bohemia is one of the most

⁵ The difference between industry and manufacturing is accounted for by the construction sector. The use of this indicator to characterize monostructural industrial regions which need to adjust appears plausible because it points to excess manufacturing in the industrial sector or, at least, to the relative underdevelopment of the construction sector in traditional industrial locations.

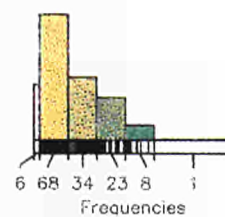
Map 6 Employment in agriculture



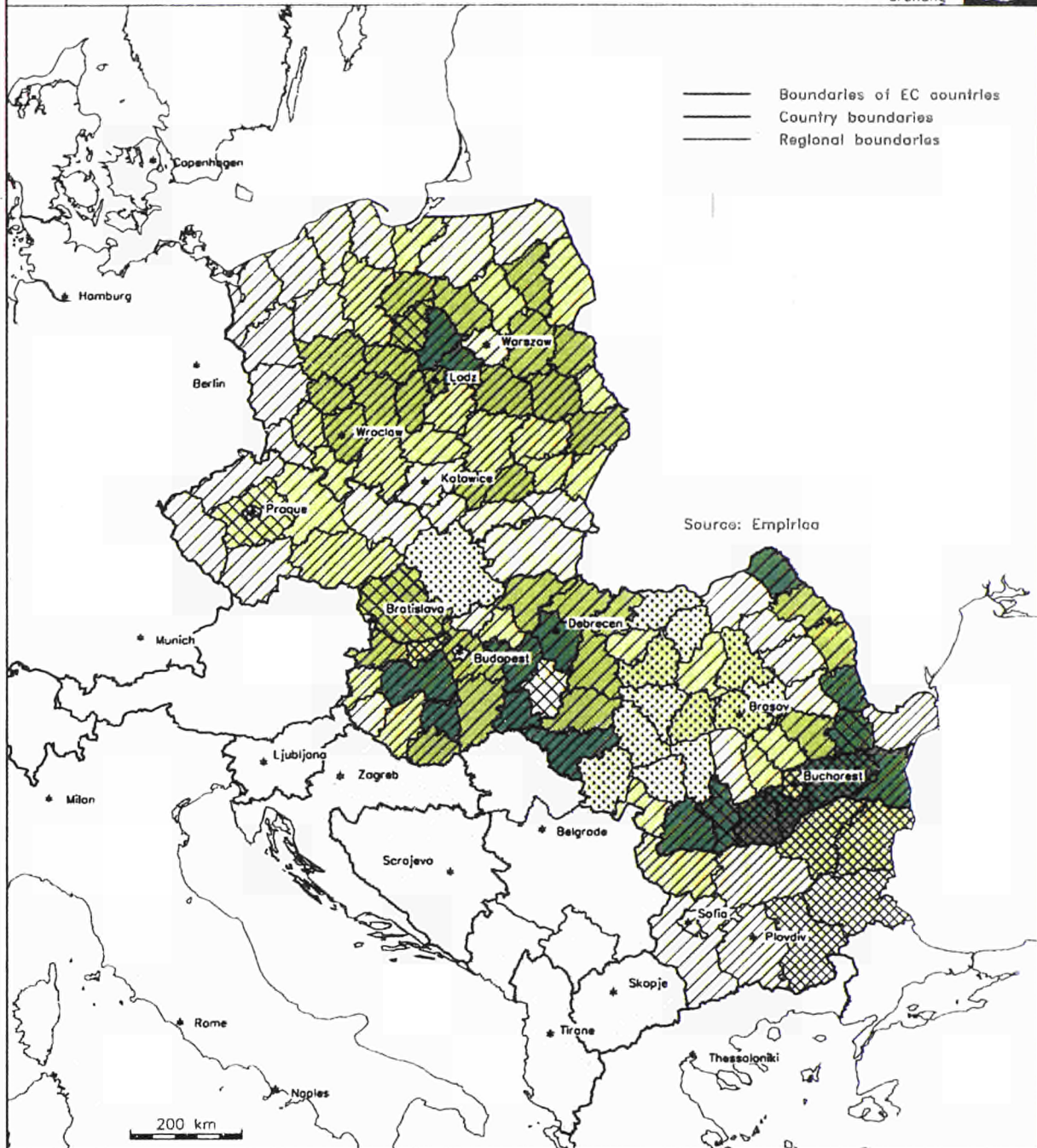
Share of employees in agriculture and forestry in population of working age in 1990 in percent (CSFR: 1991)



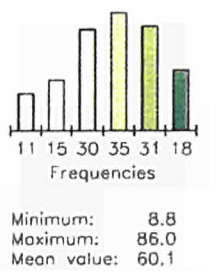
Minimum: 0.4
Maximum: 35.8
Mean value: 6.7



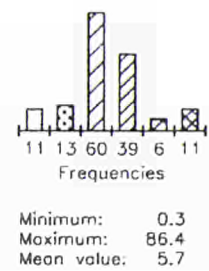
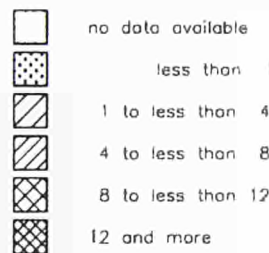
Map 6a
Land use



Share of agricultural land
in total area as percent 1990



Ratio of arable land to
permanent grassland 1990



important lignite-mining regions of Central and Eastern Europe, producing 50% of the Czech Republic's and Slovakia's total coal output and 25% of its electricity. A serious problem is also represented by industrial regions in central Slovakia, including in particular the arms-producing centres of Banská Bystrica and Martin.

A salient feature in Romania and Bulgaria is the very high concentration of industries in some locations where up to 43% of the workforce are employed in industry. Typical examples of such concentration are Lovec, the region of Sofia and the large industrial conurbations of Brasov (Bulgaria), Satu Mare, Sibiu and Mures (Romania), Jelenia Gora, Walbrzych and Bielsko-Biala (Poland) as well as central and east Bohemia and north Moravia (Czech Republic).

Prospering sectors and spatial impact

In contrast to the regions which have or could come under particular pressure due to their sectoral structure, there are individual locations which

— relatively speaking — display favourable structural conditions.

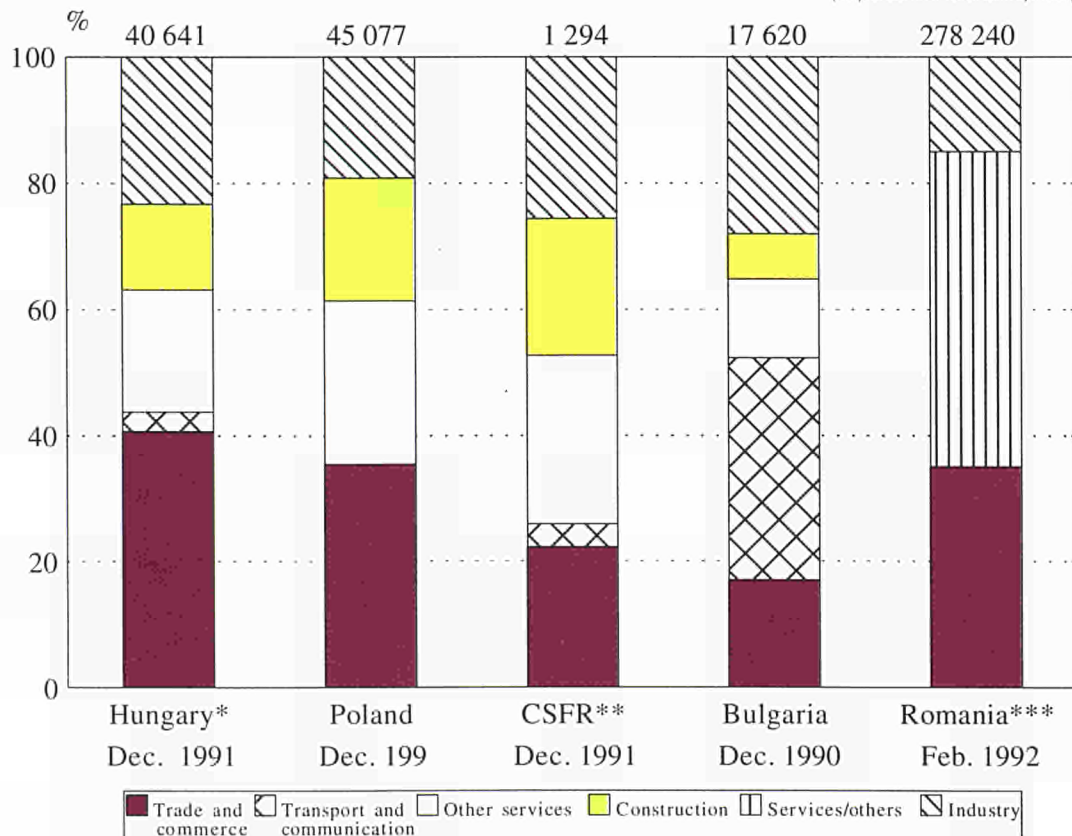
These primarily include regions where the importance of private services⁶ is particularly high. This applies above all to the capital cities as well as to western parts of the Czech Republic and Hungary. It also applies to the coastal areas of Bulgaria and Romania bordering the Black Sea where tourism is an important branch of the economy (see Map 8).

In terms of privatization the service sector has also made the most progress. In 1991, of the approximately 45 000 private enterprises in Poland and approximately 40 000 in Hungary (excluding agriculture) over 60% were in the private service sector, in the Czech Republic and Slovakia the corresponding figure is over 50%. Of these, the majority

⁶ Private services include commerce, banking, transport and communications as well as other services. The public service sector, which still accounts for a large proportion of the total services in some regions, was left out of consideration in view of its inflated condition and assuming that private services, for a large part newly created, are more efficient and innovative.

Figure 7: Share of private services in total private enterprises, December 1991 to February 1992

(as percent of total enterprises)



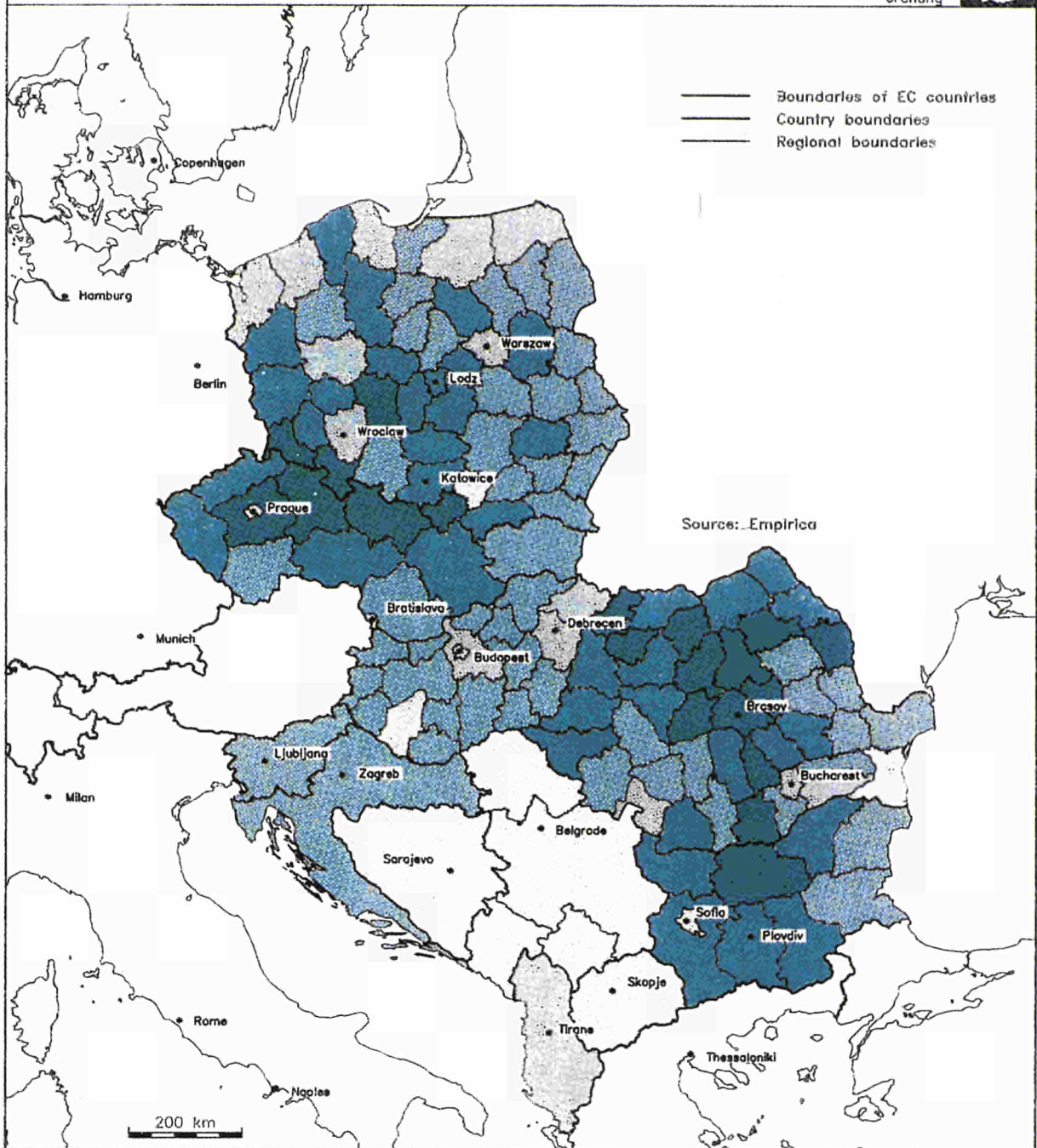
* Enterprises with 'legal entity' (including State enterprises).

** Registered entrepreneurs (1 000s).

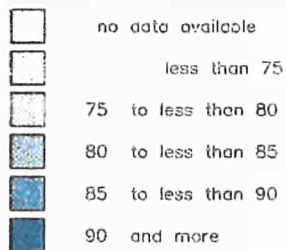
*** 29 February 1992: production 15%, trade 36%, services 35%, others 15%.

Sources: OECD, 1992c, RFE/RL 25.9.1992.

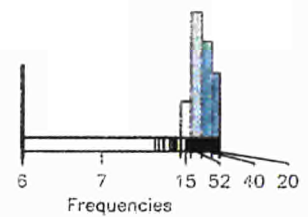
Map 7
Industrial concentration (index)



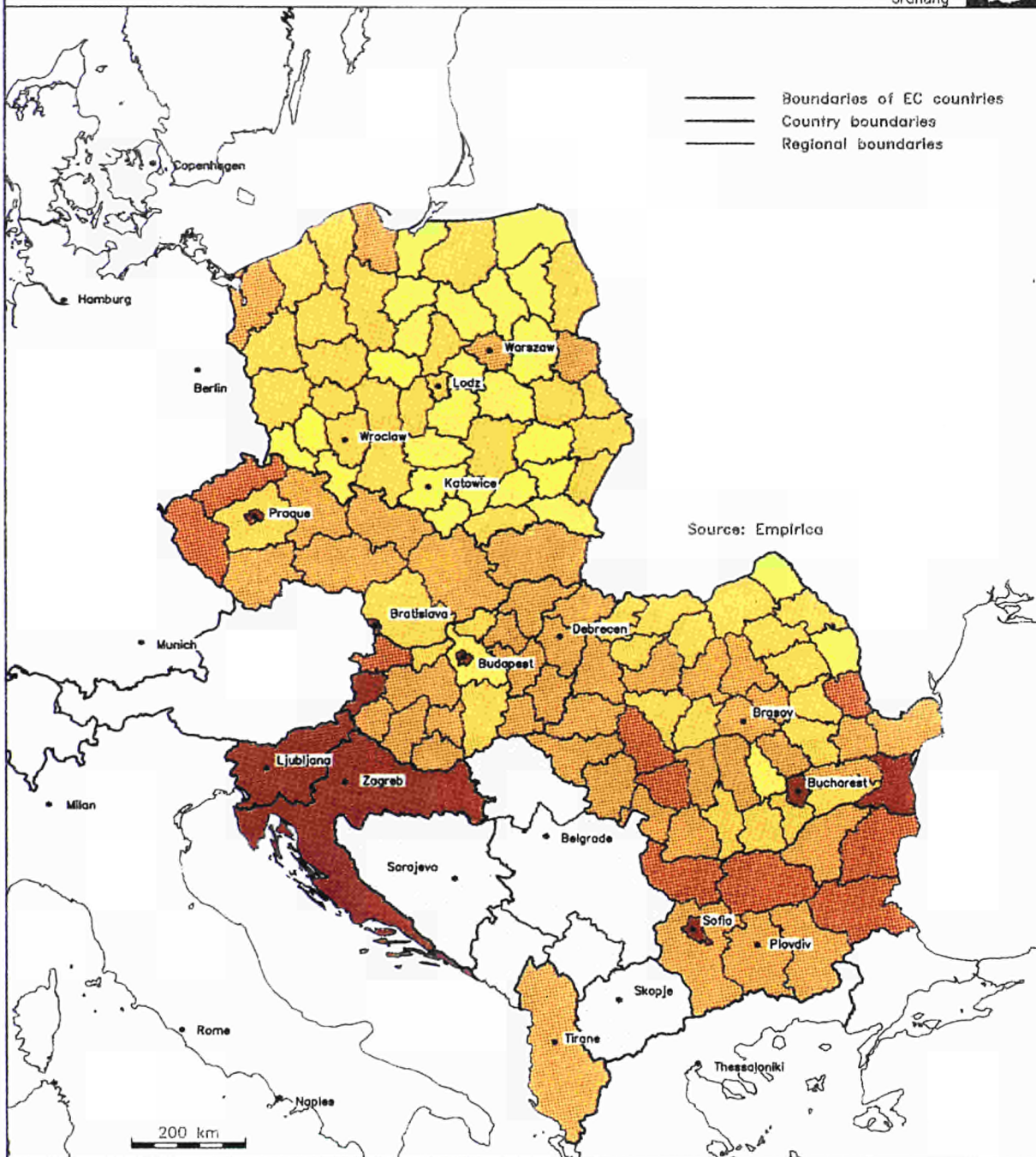
Share of employees in manufacturing industry in total employees in industry in 1990 in percent (CSFR: 1991)



Minimum: 62.8
Maximum: 93.7
Mean value: 84.2



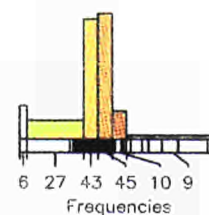
Map 8
Employment in private services



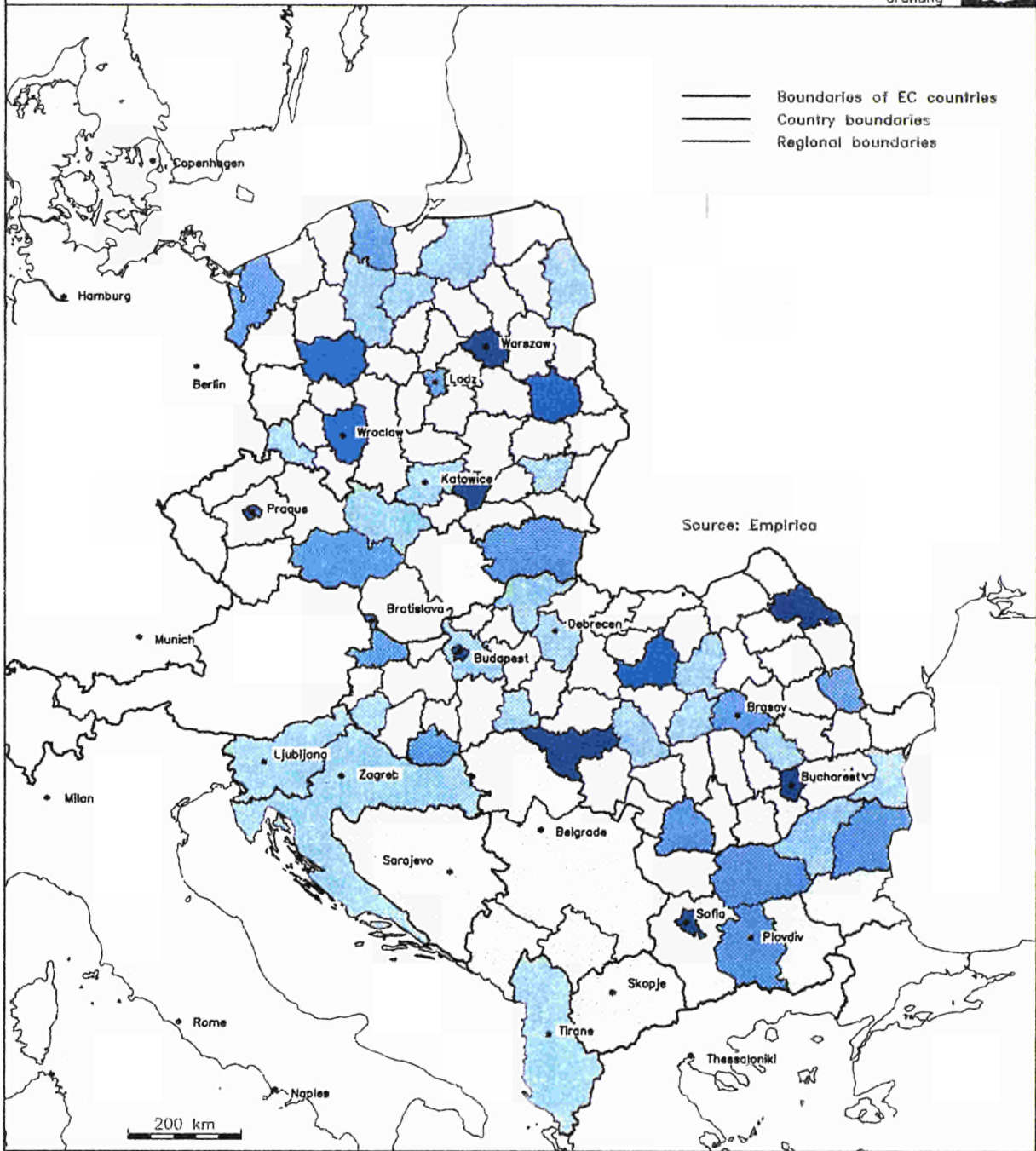
Share of employees in private services in population of working age in 1990 in percent (CSFR: 1991)



Minimum: 6.0
Maximum: 26.9
Mean value: 10.4



Map 9
Research and development



Standardized indicator of research and development centres, students and scientific technical students in 1991



Minimum: 0.0
Maximum: 100.0
Mean value: 5.8

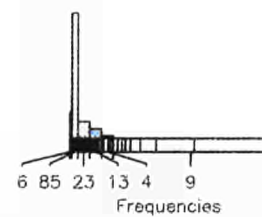
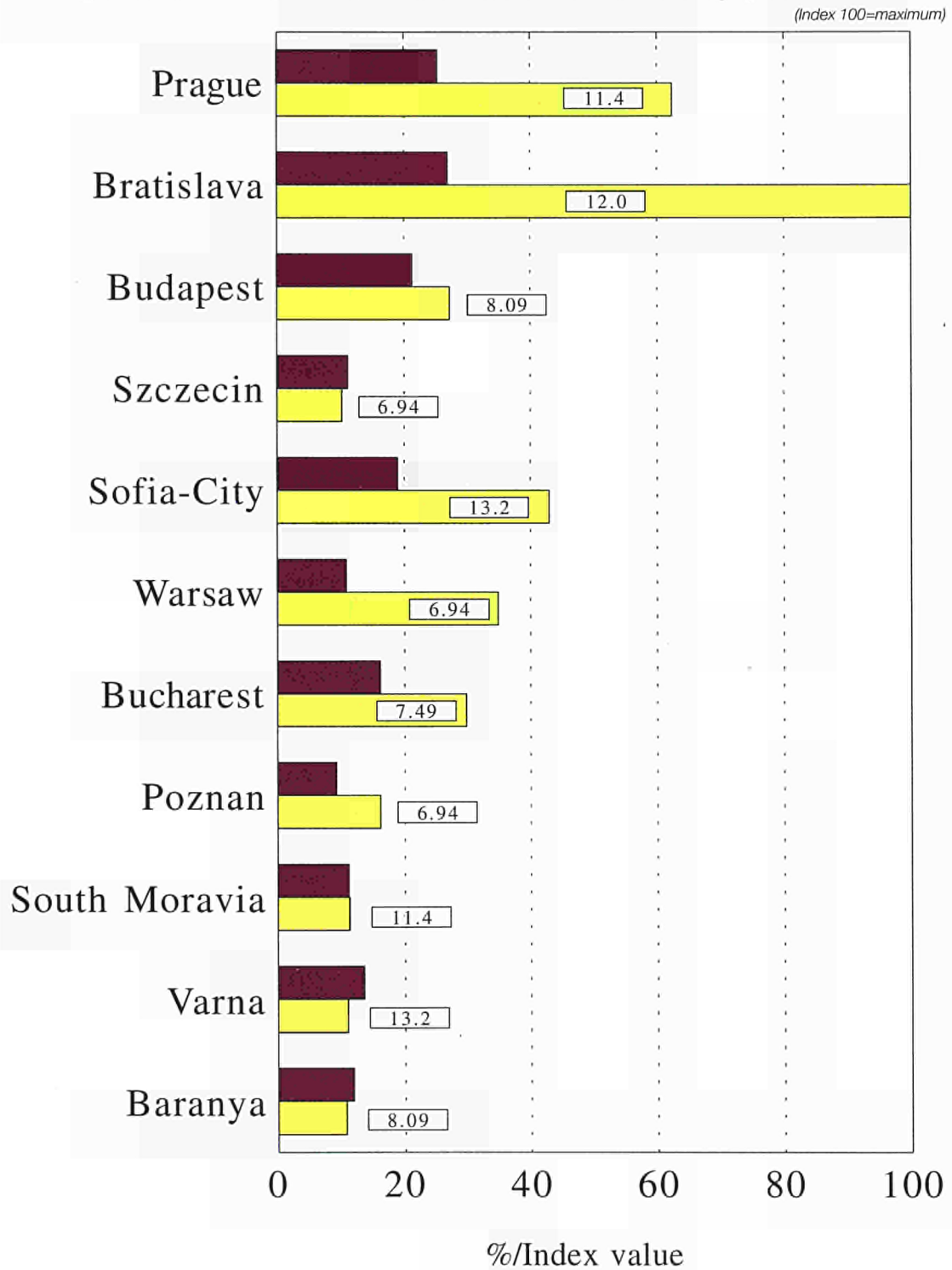
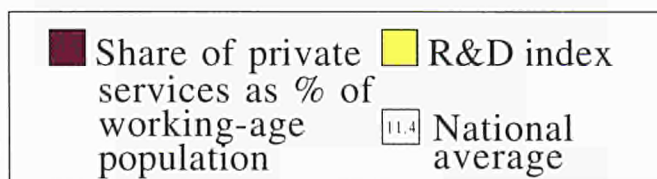


Figure 8: Index of R&D * activities in Central and Eastern Europe, 1990



* R&D index: Research and development centres, total 1990.
 Number of students at universities, total 1990.
 Number of students at scientific-technical universities, total 1990.
 Highest index value 100 = Bratislava.



Source: Empirica Regional Monitor.

are active in trade and commerce (see Figure 7). (OECD 1992c)

Besides the capitals in the various countries, some of the private service centres also play a key role as R&D centres: Poznan and Szczecin in Poland, Baranya in Hungary, south Moravia as well as Varna in Bulgaria are but a few examples (see Figure 8 and Map 9).

However, two things are to be noted regarding services. Firstly, the service sector is still of relatively low importance in Central and Eastern Europe as a whole (with the exception of Poland and some regions in the Czech Republic and Hungary), compared with the EUR 12 where an average of 60% of employees work in the service sector. This applies above all for Romania where services account for less than 30% of employment (EC 1992d). Secondly, the proportion of employees in the service sector does not in itself signify anything about the efficiency of this sector, which is considerably handicapped by delays in the reform processes. Thus, in many parts of Central and Eastern Europe no efficient credit sector and no free capital market exist as yet. Moreover, inadequate infrastructural facilities, especially telecommunications equipment, are hindering the development of internationally significant financial and service centres.

Although detailed data concerning foreign investment in the individual regions are not available, the private service centres or those regions which have relatively few structural problems appear to be most attractive to foreign companies. The largest investment flows have gone to the Prague region, to Bratislava as well as to Budapest, Baranya and Komarom in Hungary (Inotai 1992). As for Poland, almost 60% of all investments have gone to Warsaw, Poznan, Szczecin, Gdansk and Katowice (FAZ 1991).

In Bulgaria and Romania the regions with a very high proportion of service industries and relatively good development prospects are the coastal regions. Indeed, 34% of the total capital invested in Romania up until the end of 1991 went to the tourism sector and thus to the coastal regions. (RFE/RL 25.9.1992)

Regional unemployment

Unemployment, which officially did not exist during the communist era, has increased dramatically in most parts of Central and Eastern Europe since the beginning of the reform processes. Maps 10a and 10b show the numbers of officially registered

unemployed at the end of 1990 and at the end of the third quarter in 1992. This shows unemployment to be highest in the rural areas of Poland, in southern Slovakia, in north-eastern Hungary and south of Budapest, and in north-western Bulgaria. In Romania the areas with highest unemployment rates are north and south Moldova in the east of the country. However, some industrial locations are also affected by high unemployment rates (for example, Plovdiv in Bulgaria).

However, as an indicator unemployment must be interpreted carefully: high unemployment obviously points to the particular problems of the region concerned. Yet the reverse is not true: countries or regions where only relatively low numbers of unemployed are registered cannot be generally interpreted as competitively strong, let alone as prosperous. The reasons for this lie in the differing methods for registering the unemployed. Some countries do not include unemployed school leavers, in other countries the long-term unemployed drop out of the unemployment statistics (see OECD 1992c).

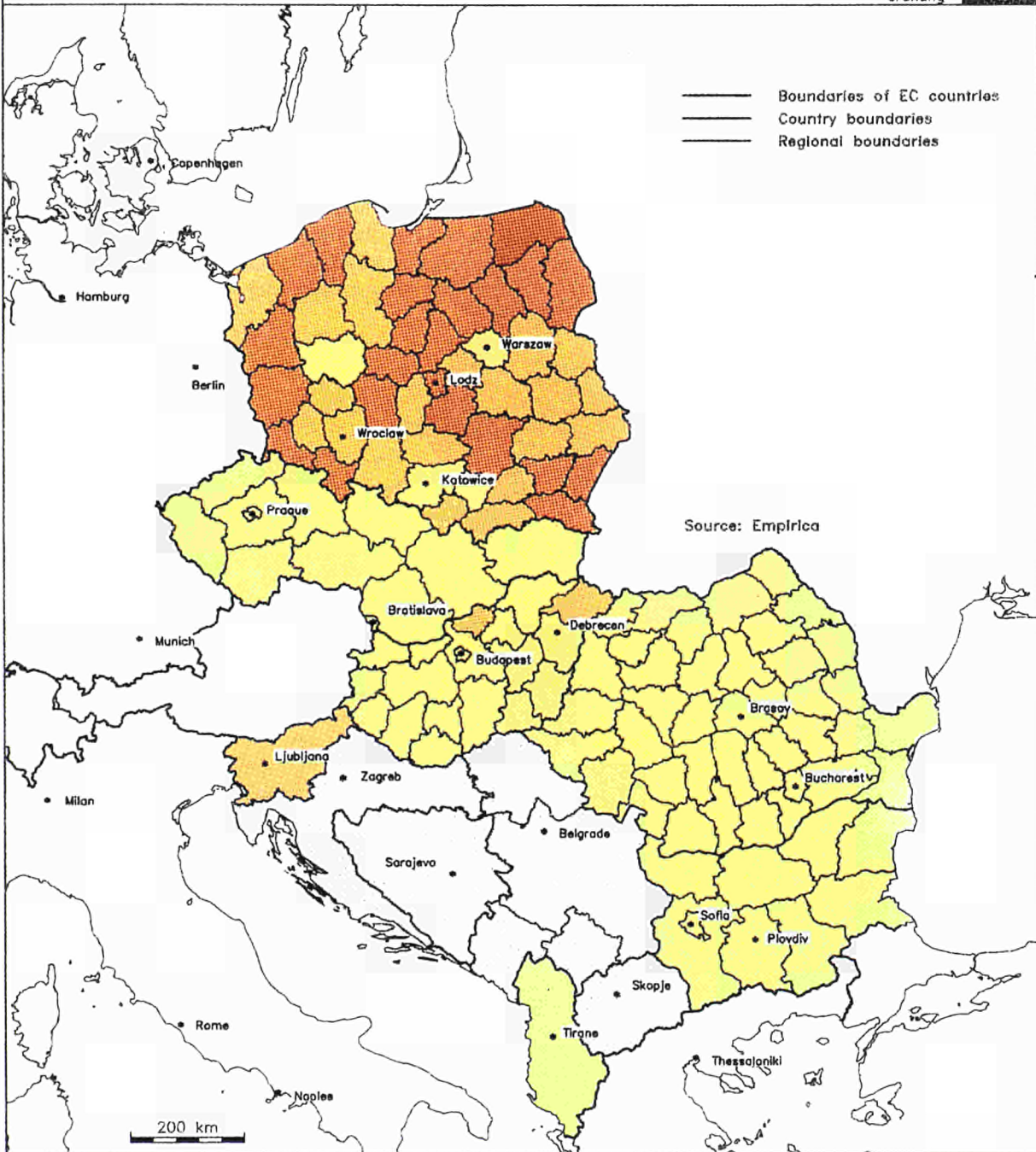
In Romania, for instance, the relatively low unemployment rate of 7.8% (third quarter in 1992) can be partially explained by the following factors: school leavers without jobs to go to are not registered as unemployed; some regions do not have any government agencies for the unemployed; labour administration is still rudimentary; State support is only received by those unemployed who fulfill certain criteria: of the approximately 700 000 registered unemployed in the first quarter of 1992, only around 441 000 received unemployment benefit. The pattern of unemployment — almost half of those registered unemployed were college graduates — also suggests that many of those who had no prospect of receiving new jobs or unemployment benefit simply did not register at all. These factors lead to the conclusion that even the forecasts of between 12 and 13% jobless for 1993 (Ilescou 1992) do not reflect real developments in the labour market.

A comparison of the development of unemployment in the individual countries of Central and Eastern Europe also shows that the rise of unemployment in the so-called early reformers Poland, the Czech Republic, Slovakia and Hungary seems to be lower in 1992 than in the previous years. In the Czech Republic and Slovakia the unemployment rate has even dropped slightly by the third quarter in 1992 compared to the previous quarter (see also Chapter 2.1).

In Bulgaria and Romania, in contrast, unemployment — still at a relatively low level in view of the

Map 10 Unemployment 1990

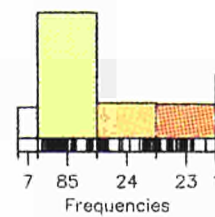
Landes
kunde
und
Raum
ordnung



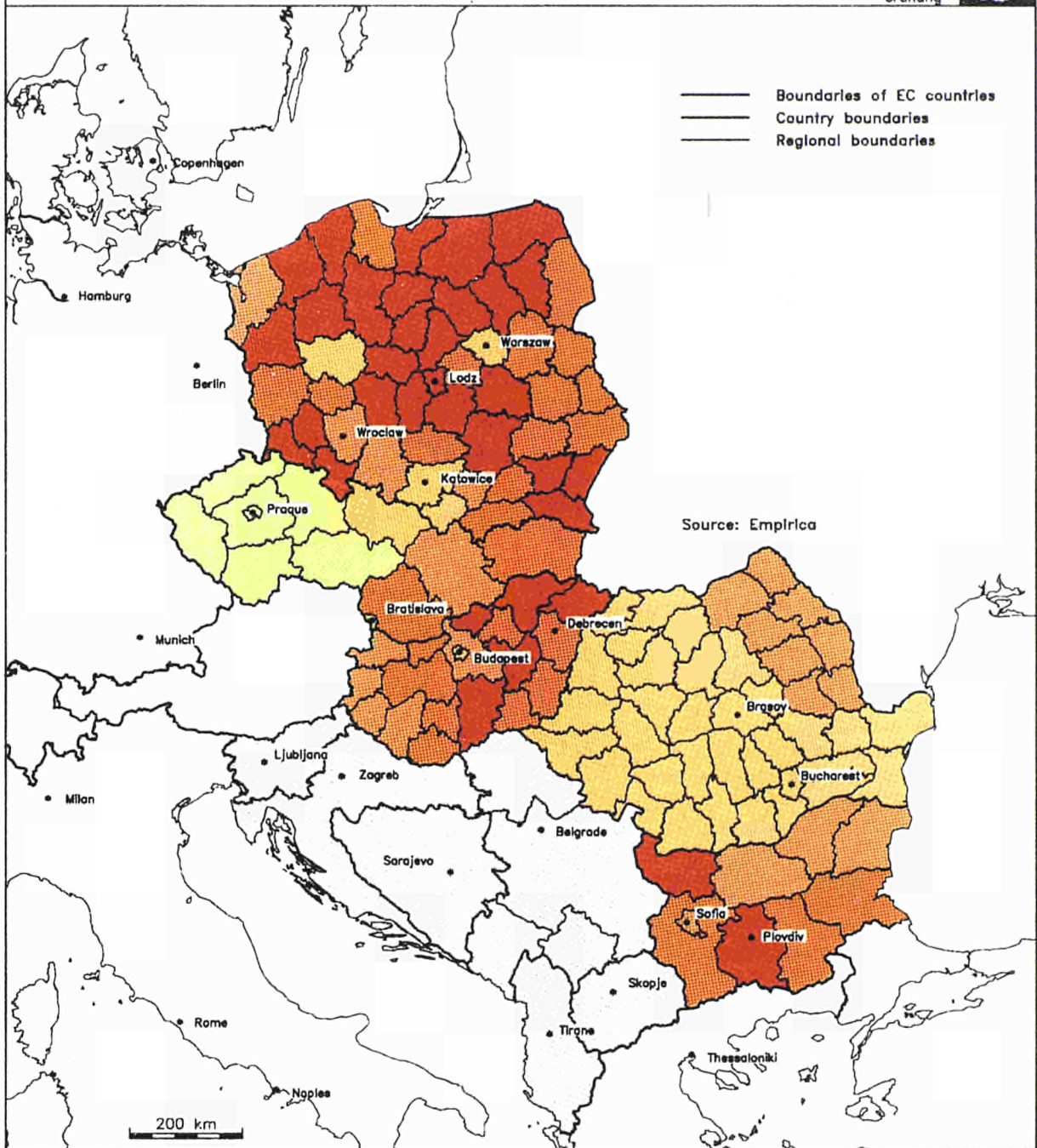
Unemployment rate (Unemployed persons as percent of population of working age) end of year 1990 (Poland: annual average)



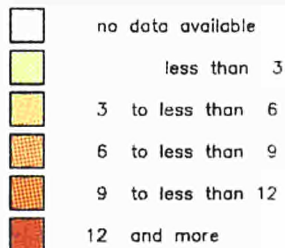
Minimum: 0.2
Maximum: 9.1
Mean value: 2.7



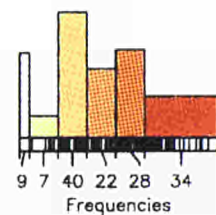
Map 10a
Unemployment at third quarter 1992



Unemployment rate (Unemployed persons as percent of population of working age)
3. Quarter 1992 (Romania and Bulgaria at 2. Quarter 1992; Hungary at 31.10.1992)



Minimum: 0.3
Maximum: 19.7
Mean value: 8.8



bad economic situation — is likely to continue to rise. The present level of unemployment is thus partially an indicator of the speed of the reform processes and especially of the privatization process.

A comparison of Maps 7 and 10b shows that unemployment is still at comparatively low levels in the monostructural industrial regions. This is due not least to the, so far, successful opposition of the trade unions and workers councils to more severe rounds of job cuts. However, the necessary restructuring measures in these regions will most likely lead to soaring unemployment in the near future.

In contrast, in rural regions (see Maps 6 and 10b) unemployment is already at disproportionately high levels. It should be added, however, that the official figures do not give a true picture of the labour market situation in rural areas as in some countries, for example Poland and Romania, unemployed persons who cultivate a plot of land (0.5 ha) are not registered as unemployed.

In view of the incipient process of restructuring in the former State-owned enterprises in Central and

Eastern Europe it is to be assumed that large waves of redundancies are still to come, affecting the individual regions to differing extents.

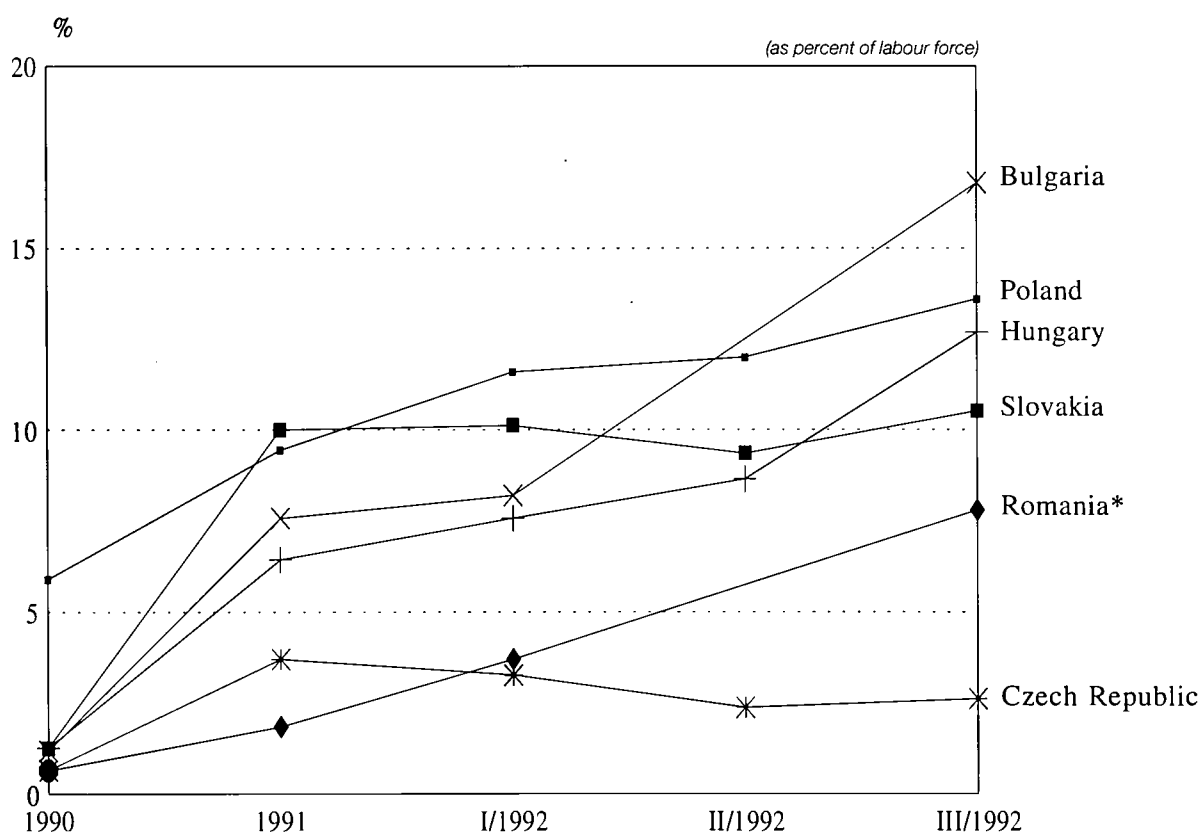
On the whole it can be taken for granted that unemployment will remain an extremely serious problem over the next few years, mainly affecting the agrarian-structured problem regions and the monostructural industrial locations.

2.3. Regional disparities in infrastructure and in standards of living

The deficiencies in the spatial development in Central and Eastern Europe are reflected not only by the critical state of the economic structures. Large parts of Central and Eastern Europe are also far behind Western standards in terms of technical, social and medical infrastructure, although there are wide regional disparities here.

There are some deprived regions such as north and south Moldova which lack efficient transport and communications links to larger centres, which

Figure 9: Development of unemployment in Central and Eastern Europe, 1990-III/1992



Source: EC 1992d, empirica Regional Monitor.

cannot guarantee adequate medical care and where the local population's standard of living is extremely poor. Such deficiencies are not only important obstacles to development in these regions, but also form a breeding ground for social tensions. Moreover, they have a push effect (besides unemployment) on emigration.

Transport infrastructure

So far rail transport has been the dominant form of transportation in Central and Eastern Europe. In 1990 the railway network carried around two-thirds of goods traffic as compared to only around 20% in the Community territory (see Figure 10a). Meanwhile, the ratio has changed, however, in favour of road transport. In Romania, for instance, the volume of road transport rose by 50% since 1990 while rail transport slightly declined, a trend which is mainly attributable to the decline of trade with the former Soviet Union and the increase of trade with Western Europe. Along with the shift of trade came the need for more flexibility which roads are more apt to meet than railways, inadequate and derelict as these often are.

Rail and road

Quantitatively, the rail network is relatively well developed, above all in the Czech Republic and Slovakia (1990: 102.50 km/1 000 km²), in Hungary (84.17 km/1 000 km²) and in Poland (76.73 km/1 000 km²) which rank far ahead compared to other European countries (see Annex) (United Nations 1992), but large sections of the network are in dire need of modernization.

Due to a lack of investment in the past and the great strains put on the railway — for example, in 1990 around 26 million tonnes of freight were transported per kilometre of railway in the former Soviet Union (1.3 million tonnes in the EUR 12, 7.8 million tonnes in the USA) — most networks and railways are in a terrible condition.

The generally poor quality of roads is common to all countries of Central and Eastern Europe. For example, in 1990 only 0.72% of the roads in the Czech Republic and Slovakia were classified as motorways (Poland: 0.08%, Hungary: 1.3%; for comparison Western transit countries: Germany: 3.4%, Benelux: 5.1%), in other countries there are scarcely any motorway-standard trunk roads at all. Yet there are some considerable differences between the individual countries and regions, both regarding present links to the transport net-

work and in respect of future plans for expanding the road network.

The following two maps show the major road and rail corridors (existing and planned) in the countries of Central and Eastern Europe as well as the major links to the European Community.

Rail and road corridors run parallel for the most part. In the following the major road and rail corridors of the individual countries are described (for more details see empirica 1993a).

Samples of existing transport corridors

Czech Republic and Slovakia

The most important transport axes between the Czech Republic and Slovakia and to their Eastern European neighbours run from Ostrava via Zilina-Kosice-Clerma to Tisou/Cop in the direction of the Ukraine or from Prague via Brno-Bratislava-Komárno-Stúrovo to Budapest. A section of motorway runs between Prague, Brno and Bratislava.

The Czech Republic's most important corridor towards the West runs from Prague to Paris via Plzen-Cheb-Schirnding-Nuremberg-Frankfurt.

Besides this, the axis from Prague-Decín-Bad Schandau-Dresden-Berlin-Copenhagen-Malmö and the route between Prague-Plzen-Domazlice-Ceská Kubica-Furth im Wald are also important. The major corridor to Austria is Prague-Tabór-Ceské Velenice/Gmünd-Vienna.

Slovakia has only one transport axis to the West: Bratislava-Marchegg-Vienna.

Hungary

Within Hungary there are four important transport corridors, all of which run via Budapest. While some developed road links still exist between these corridors in the east and north-east of the country, in the south there are hardly any connections in an east-west direction.

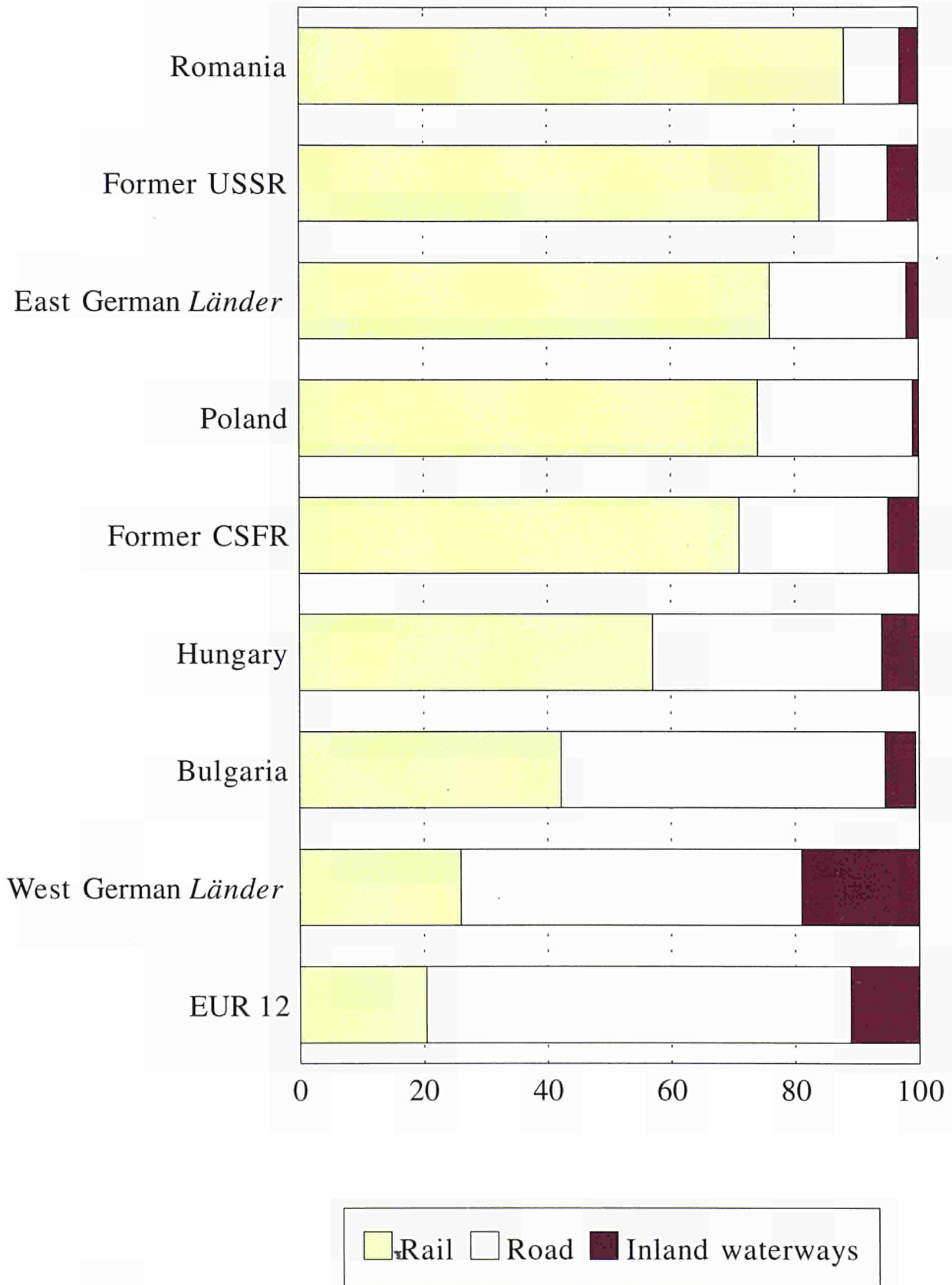
Poland

The Polish transport system is distinguished by two important east-west axes, with several north-south connections running between the two (linking large towns). The Berlin-Warsaw-Minsk-Moscow route is situated roughly in the centre of the country: this also used to be the most important international transport route. In the south, the route from Zgorzelec/Görlitz on the border to Germany through the Upper Silesian industrial area up to the Ukrainian border is important to international transport, since many of Poland's industrial regions are linked to this route.

Alongside these two important east-west transversals, two axes run diagonally through the country: one from the Polish-Czech border through the

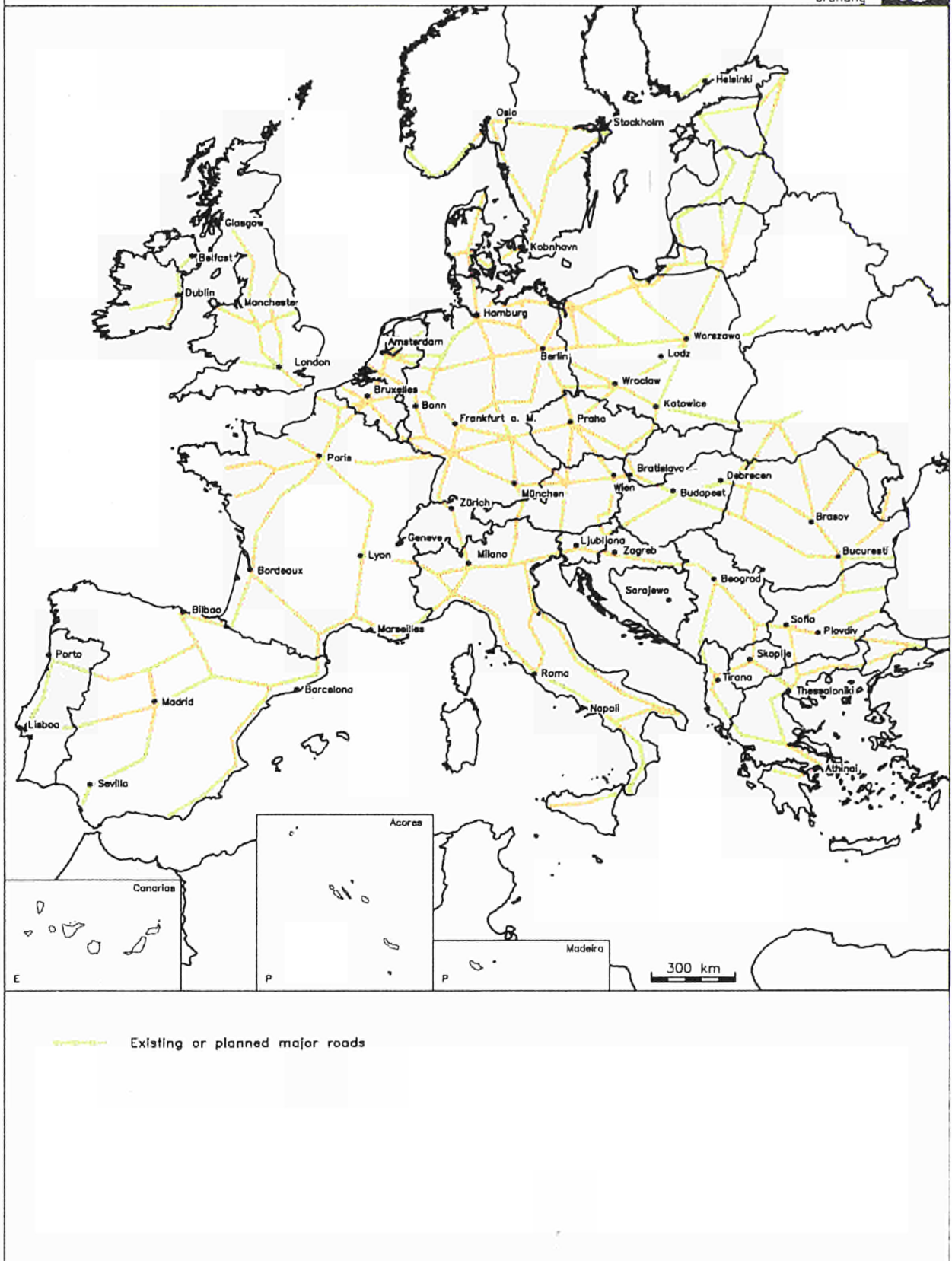
Figure 10: Share of rail transport in total freight transport, 1990

(as percent of total transport)



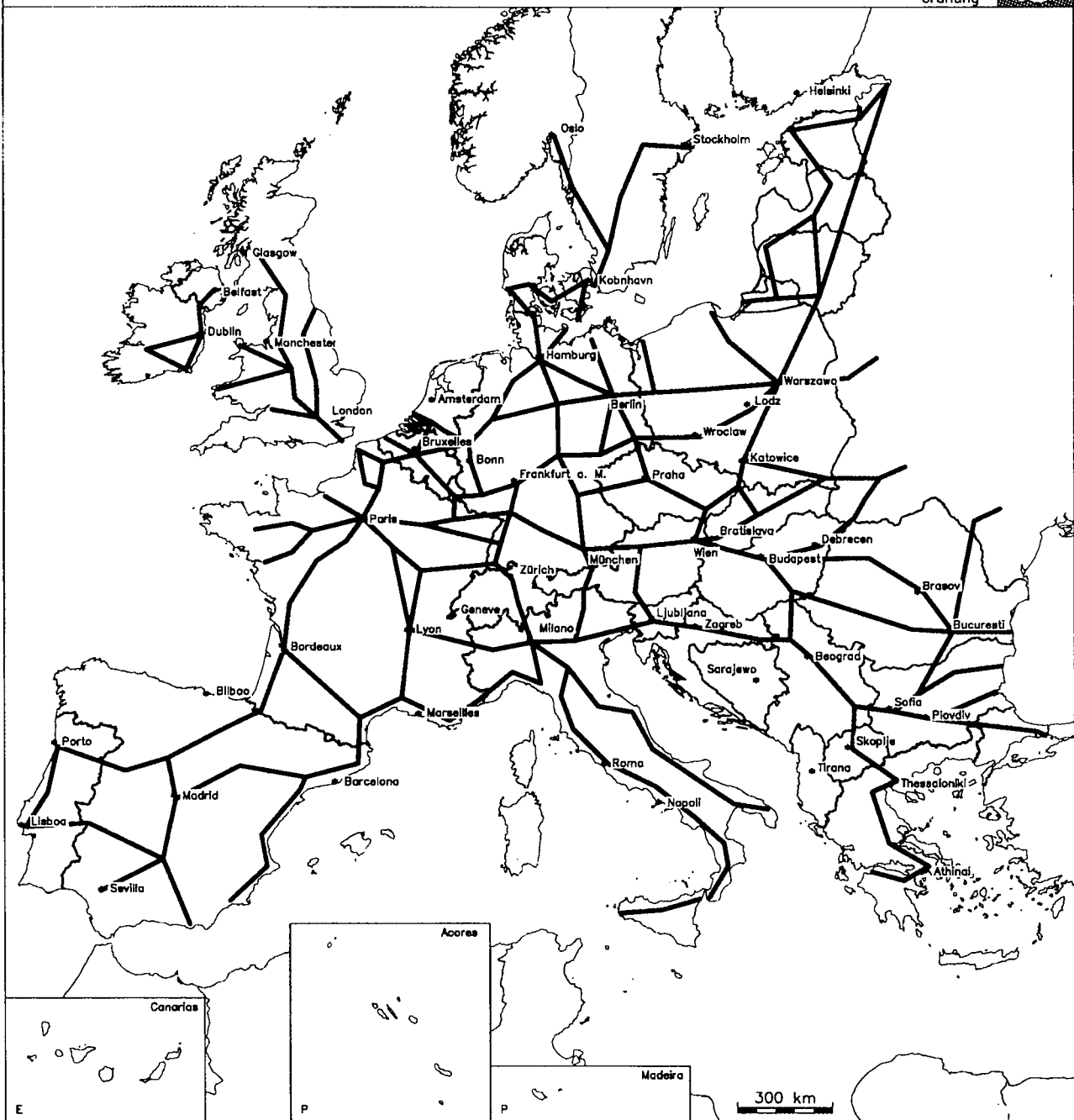
Source: United Nations 1992.

Map 11a
Major road transport corridors



Map 11b
Major rail transport corridors

Landes
kunde
und
Raum
ordnung



— Existing or planned major railways

Upper Silesian industrial area to Warsaw and the other between Szczecin-Poznan-Wroclaw.

Bulgaria

The main axis for both the rail and the road networks runs from Sofia in an easterly direction to Burgas and Varna.

The most important links to other countries run from Sofia in the north-east and Varna in the north-west to Ruse (on the Romanian border) through Bucharest and L'vov to Poland or to Western Europe and to the States of the former Soviet Union; from Sofia via Nis and Belgrade to Hungary, to former Czechoslovakia and to Poland or Austria; and finally from Sofia through Plovdiv to Greece and Turkey.

Romania

The rail and road network in Romania is governed specifically by natural conditions and forms a loop: coming from the Ukraine in the north, it passes through the towns of Suceava and Roman and continues to Bucharest. A main corridor linking Romania with the western regions of the Ukraine and with Poland is the route from Bucharest through Suceava, Chernovtsovy and L'vov to Przemysl. The route through Oradea to Budapest is the most important link to Hungary, into former Czechoslovakia and to Austria. The route through Giurgiu forms the main corridor to Bulgaria, Greece, and into Turkey.

Baltic States

The most important road and rail links between the Baltic States and their Eastern European neighbours run from Tallinn, from the coastal towns of Ventspils, Liepaja (Latvia) and from Klaipeda (Lithuania) via Riga to Russia and Belorussia or via Vilnius to Belorussia and Poland.

Albania

There is only one link to the Western European railway network in the north of the country (Bajzë). Besides this there is a range of poorly-developed road links between Albania and former Yugoslavia and Albania and Greece.

The above description of the important transport corridors shows that road and rail links exist between the major centres of the countries of Central and Eastern Europe, but the roads are generally in a very poor state (except a few motorway sections) and railway networks, too, are badly in need of modernization.

All experts agree that to extend and modernize the transport networks in Central and Eastern Europe will require huge financial means, as the following estimates show.

Estimates of the costs of infrastructural projects

According to an estimate by COWI Consult (COWI Consult 1991) the cost of turning the following 12 major road corridors into motorways of Western standard would amount to some ECU 50 to 74 billion (1991 prices):

1. (Berlin) — Warsaw-Moscow
2. (Berlin) — respectively (Dresden)-Katowice-Kiev
3. (Berlin) — Prague-Vienna-Budapest-Belgrade-Sofia-(Thessaloniki) (respectively Ankara)
4. (Nuremberg) — Prague-Warsaw
5. (Italy) — across Slovenia-Croatia to Budapest
6. Gdansk-Prague
7. Szczecin-Prague
8. (Thessaloniki)-Sofia-Bucharest-CIS
9. Budapest-Bucharest-Constanta
10. (Italy/Austria)-Slovenia-Croatia-Belgrade
11. Link between Belgrade and corridor 9
12. Link of corridor 6 via Slovakia towards the CIS.

To develop the rail networks along these axes according to West European standard would cost another ECU 37 to 50 billion.

The International Union of Railways (UIC) published an estimate of the cost accruing from developing, modernizing and extending the major railway lines in Central and Eastern Europe (Handelsblatt, 4.2.1992). They start from a core network comprising 11 500 km of tracks in Poland, the Czech Republic, Slovakia, Hungary, former Yugoslavia and the new German *Länder*. To modernize 7 000 km of this network to reach Western level (travel speed 160 to 200 km/h) and to newly construct an additional 3 500 km would cost about ECU 58 billion. Only a fourth of this amount has so far been budgeted for by the countries concerned while the financing of the rest is yet uncertain. Core sections would be the line Berlin-Warsaw to be newly constructed as well as the lines Berlin-Prague-Vienna-Budapest-Belgrade and Nuremberg-Prague-Warsaw to be modernized and newly constructed.

According to the UIC estimates, to newly construct or improve the lines Berlin-Warsaw or Nuremberg-Prague would greatly reduce travel times, between Berlin and Warsaw from currently more than seven hours to three and between Nuremberg and Prague from more than five hours to two. As a result, the railways would greatly improve their competitiveness *vis-à-vis* the roads on distances of 200 to 800 km in the UIC's opinion (Handelsblatt, 4.2.1992).

At present, and particularly in Poland, the Czech Republic, Slovakia and Hungary, great efforts are being made to develop and modernize the most important routes. (For more details see *empirica* 1993a.)

In order to meet the huge financial requirements, forms of private financing are envisaged in all three

Samples of important infrastructural projects

Czech Republic and Slovakia

The major motorway development projects are the links between Prague, Plzen and Nuremberg, Prague and Dresden and Bratislava-High Tatra.

Considerable expenditure is essential to develop the most important motorway routes (approximately 260 to 300 km). Total investment which will be needed for this has been estimated at around Koruna 30 billion (approximately ECU 3.21 billion).

At present there is a lack of innovative and comprehensive traffic planning, to promote combined goods transportation in particular. For the short term at least road construction appears to have been granted priority over measures on the railways and in inland shipping.

Hungary

The main goal of the larger-scale infrastructure projects is to reduce traffic in the capital by constructing an orbital motorway around Budapest and to establish new east-west and north-south links by developing cross-border motorway connections. There are plans to build 500 km of new motorways along the main axes via Budapest. The cost of the most important projects is estimated at around Forints 250 billion (approximately ECU 9.5 billion).

As regards modernization of the railway network there are plans to close the qualitative gap with Western Europe. So far it lags behind by around 20 years. To this end, intercity links are also to be developed amongst other things: with average speeds of 160 km/h these will attain international standards, though not high speeds of 200 km/h or more.

Poland

No major railway projects are being planned but all decisions have been postponed in view of the tight public budgets. Repair and maintenance work on existing lines is carried out for which a sum of Zloty 2 600 billion was earmarked in the 1992 national budget.

It is planned to modernize the most important railway lines with the aid of World Bank loans (in the order of ECU 80 million). An important project in terms of international transport is the construction of a broad-gauge railway from Brest to Gdynia, as a result of which the sea port in Gdynia should become the most important port for transport to and from Belarus.

Connections between Elblag and Kaliningrad, both overland (road and rail) and by sea are also being developed at present.

Additional projects include new motorway connections, both east-west (via Warsaw) and north-south (Gdansk-Katowice). These projects form part of the planned corridor from Scandinavia through the Baltic States towards the Balkans and to Western Europe. However, due to Poland's current financial crisis, these projects either are only in the initial stages of development or have been postponed for the present. It is planned in the medium term to build 2 500 km of motorway and 3 500 km of motorway-standard trunk roads.

Bulgaria

Expansion and modernization measures are planned for the 1990s. These involve in particular the Bulgarian sections of the transit rail route from Sofia to Nis (in former Yugoslavia) and the connections to the Greek and Turkish border.

The orbital motorway between Sofia, Varna and Burgas, which was commenced in 1972, should be completed by the year 2000 and an additional route should also be constructed between Sofia and Pernik. The long-term road construction programme envisages the construction of a better connection between peripheral regions and large centres in particular.

Romania

Since the importance of road transport has increased significantly over the past few years and in view of the poor condition of the roads, the modernization and expansion is given high priority. An important project is the development of the road connection between Bucharest and Constanta via Cernavoda.

Only approximately Leu 300 million (approximately ECU 0.538 million) has been made available for the development and modernization of the Romanian transport infrastructure.

Baltic States

The 'Via Baltica' is a major project: it comprises the construction of a motorway from Helsinki to Warsaw via Estonia, Latvia and Lithuania to link Scandinavia with Central Europe. It is estimated that approximately 20% of traffic between Finland and Central Europe will use this new route; the annual growth rate of the traffic volume is estimated at 3.5 to 6%. In March 1992 the Lithuanian Parliament agreed upon construction of the section through Lithuania; this is to run from the Latvian border via Pasvalys, Panevėzys, Kedainiai, Kaunas and Marijampole to the Polish border.

The total length of the Via Baltica through the three Baltic States amounts to approximately 649 km. The motorway section running through Lithuania is 274 km long, of which only 116 km are surfaced at present and only 26 km developed as motorway-standard trunk road. Nor do the existing stretches of motorway in Latvia and Estonia meet the required standard. The plans are divided into three phases and should be completed in 2010.

Albania

A major prerequisite for the increased international integration of Albania is the airport in Tirana and the modernization of rail and road connections between Albania and its neighbouring countries. At least ECU 300 to 430 million is needed for development of the main road links to former Yugoslavia and Greece, which should be carried out over the next 5 to 7 years, and for the construction or modernization of the airports in 3 to 4 years. The road network would then total 2 000 to 3 000 km in length.

countries. In Hungary around 60% of total costs which can hardly be provided by the national budgets are due to be covered with the aid of concession contracts. In the Czech Republic, Slovakia, Poland and currently in Bulgaria and Romania similar arrangements have been planned.

In Romania, the amount which has been made available so far represents a relatively insubstantial amount compared to the total investment needed. It is hoped that foreign investors will help to enable realization of the most important projects. To this end, the introduction of concession agreements is also envisaged in connection with toll charges.

In Bulgaria there are also plans to launch job creation measures especially in the building sector which are meant to reduce the high unemployment figures and at the same time to promote the urgently needed development/modernization of infrastructure.

Inland navigation, major river and sea ports and combined transport

With regard to inland navigation, it is remarkable that transport via inland waterways plays a relatively insignificant role although there are several big rivers — the Danube which crosses many countries of Central and Eastern Europe or the Vistula and Oder in Poland (see Map 11c). The navigable length of the Vistula, for instance, is three times longer than that of the Rhine but the volume transported is only one third of the latter.

In 1990 only 0.8% of total transport in Poland was by inland navigation, (corresponding figure for the former Czech Republic and Slovakia: 4.4%, Bulgaria: 4.8% and Hungary: 5.5%). Since in the past freight transport by rail was given priority, only very little money went into investments to modernize harbour facilities and vessels. As a consequence in Romania, for example, approximately one-third of vessels are unfit for use and capacities in inland navigation are exploited only by 40%. The capacity utilization rate on the Romanian section of the Danube-Black Sea Canal, for instance, is as low as 10% of the envisaged rate. In Bulgaria, too, transport via the Danube had become ever less important in the 1980s.

Yet the infrastructure programmes of all countries provide for the improvement of inland navigation as a mode of transport. Hungary plans to expand the ports of Győr, Nagytétény, Szeged, Baja and Dunaj-Város. To finance the projects it is planned

to grant concessions as has been done with motorway projects.⁷

Also Romania has given greater attention to inland navigation since the completion of the Danube-Black Sea Canal. It is expected that to develop the port of Constanta (at the entry of the Danube into the Black Sea) into an inland and sea port would not only have a positive impact on the area of Constanta but also significantly raise the relative importance of navigation on the Danube.

For the Baltic Sea riparians Poland, the Baltic States and Russia (St Petersburg, Kaliningrad) as well as for the riparians of the Black Sea, Bulgaria, Romania and the Ukraine (Odessa) maritime shipping plays an important role.

The ports of Gdansk-Gdynia and Szczecin-Swinoujscie in Poland constitute two harbour complexes of importance to international transport, with regular ferry links to the Baltic ports in Germany, Denmark, Sweden and Finland. There are plans to expand and modernize them (e.g. as container terminals). In addition, a sea connection between Gdansk and Kaliningrad is being developed at present.

The Baltic States have direct international links (apart from air) via the Baltic Sea. At present there are ferry links from Tallinn to Helsinki and Stockholm, from Riga to Stockholm and Kiel, from Klaipeda (Lithuania) to Kiel and Mukran on the island of Rügen. The port of Klaipeda, especially the container terminal, is to be modernized and expanded.

Scandinavian interests have a decisive influence on the selection, financing and rapid realization of transport projects. For example in 1992, the Danish port Apenrade commissioned a feasibility study to find out whether a shipping line to Tallinn would be a rational development, allowing traditional trade routes to be reopened.

The most important sea ports in Bulgaria are Burgas and Varna.

In Albania sea transport links exist via the ferry from Duzarro port (Albania) to Trieste and Bari (Italy) and, more recently, between the port of

⁷ Investment towards modernization and expansion in the shipping sector (and also air transport) are expected in the course of the privatization of MALEV (State airline) and Mahart (State shipping company), where foreign capital investment will be authorized up to 49.9% and 74.9% respectively.

Map 11c
Major inland waterway transport corridors



 Existing major inland waterways

Sarande in the south of Albania to the Greek island Corfu.

The emphasis on the development of inland waterways and seaports must also be seen in the context of the growing importance attributed to combined freight transport by rail and waterways even though at the moment it is still rather insignificant. Especially Hungary, Poland, the Czech Republic, Slovakia and the Baltic States consider its development a task of high priority. Emphasis is less on the construction of new railway lines but rather on the modernization and electrification of existing ones, which is meant to speed up transport or (in the case of the Baltic States) to link the national network to West European systems.

Other projects to promote combined transport include the abovementioned broad-gauge track to link Brest (Belarus) to the Polish port of Gdynia and the two large-scale projects in the Balkans — the motorway connecting Sofia, Varna and Burgas and the modernization of the road link between Bucharest and Constanta (via Cernavoda). Also the 'Southerline project', undertaken by Slovakia, is an example of integrated traffic planning. A railway line is to be constructed from Kosice to the harbour in Bratislava, to allow combined transportation by railway and shipping.

Another project is the planned development of the 'southern rail route' in Slovakia, which is to be electrified and expanded to double-track to allow improved goods-transport from the Ukraine and the western CIS countries to the Danube.

Telecommunications infrastructure

The inadequate telecommunications infrastructure is just as serious an impediment as transport infrastructure. In terms of total population, the supply of telephone connections in Central and Eastern Europe is only 25% of the EC average. Slovenia, the Czech Republic and Bulgaria have the highest number of telephones per 1 000 inhabitants (approximately 300). The Baltic States, Poland and Romania lag far behind with less than 100 (see Annex, Figure 3).

Map 12 shows the regional distribution of telephone subscribers in Central and Eastern Europe. While capital cities have a well-above-average number of telephone subscribers (in Hungary almost half of all subscribers are in Budapest) there are some peripheral locations where telephone supply is very poor. In south Moldova

(Romania) only 82 out of 1 000 people had a telephone in 1990, in Albania the ratio is still poorer, 15.53 per 1 000 inhabitants and some regions have no telephone facilities at all. Telefax, telex and data-transmissions systems only exist in cities and they are totally overburdened.

In the telecommunications sector, too, huge efforts are being made to improve supply above all in the relatively advanced countries: the gap between the Hungarian and Western industrialized countries should be closed by the year 2000 and regional disparities in terms of telephone connections should be reduced. Yet, at least for the next few years, the so-called 'insular strategy' looks certain to prevail in the telecommunications sector, whereby the cities or the relatively prosperous regions are treated preferentially in supply terms.

Social/medical infrastructure

As regards social and medical provisions there are also wide regional disparities. Map 13 shows that in some regions the availability of medical care is — indicated by number of physicians and hospital beds — exceptionally good, but that many regions demonstrate serious shortcomings in medical services. This is the case in the peripheral regions of northern and eastern Poland and Romania as well as locations of southern Bulgaria.

Standards of living

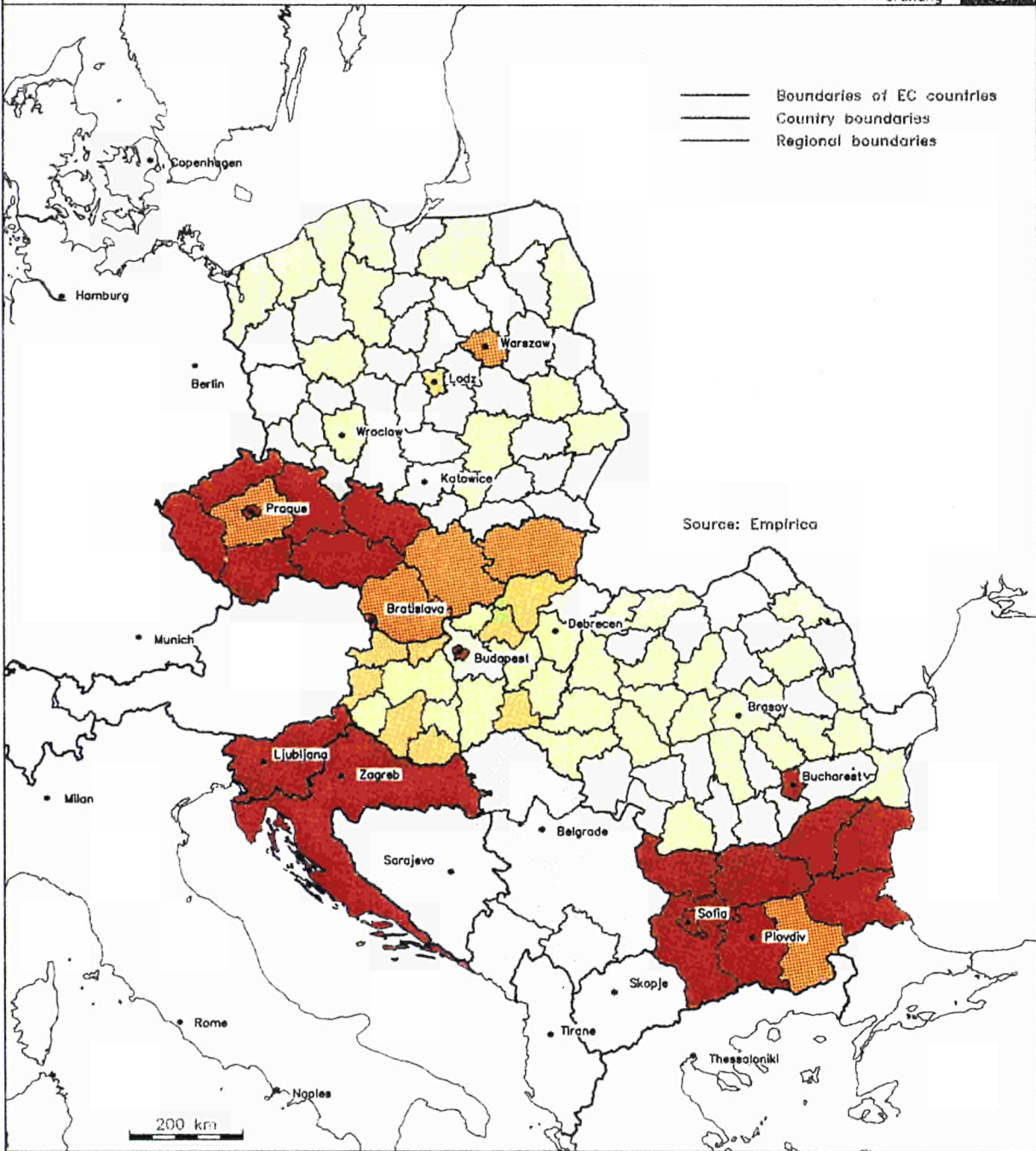
Standards of living not only differ between the individual countries of Central and Eastern Europe but also between regions. Maps 14 and 15 portray the regional disparities using the indicators 'persons per m² of dwelling space' and 'car-ownership density'.

The relatively prosperous regions of Poland and Bulgaria have above-average values for both indicators, while the standards of living in poorer rural regions are below-average. The Czech Republic and Slovakia are characterized by large disparities with regard to both indicators. Car ownership density as well as dwelling space per inhabitant is much higher in the Czech Republic than in Slovakia.

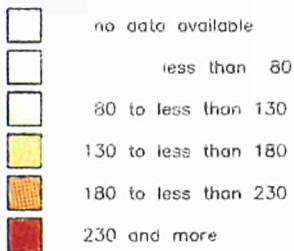
Compared with Western Europe, however, the standards of living are still relatively low. This is true of the number of private cars and the size of dwellings (see Annexes), but above all of the quality of housing in terms of sanitary facilities, central

Map 12 Telecommunications

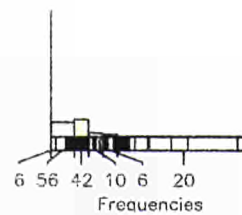
Landes
kunde
und
Raum
ordnung



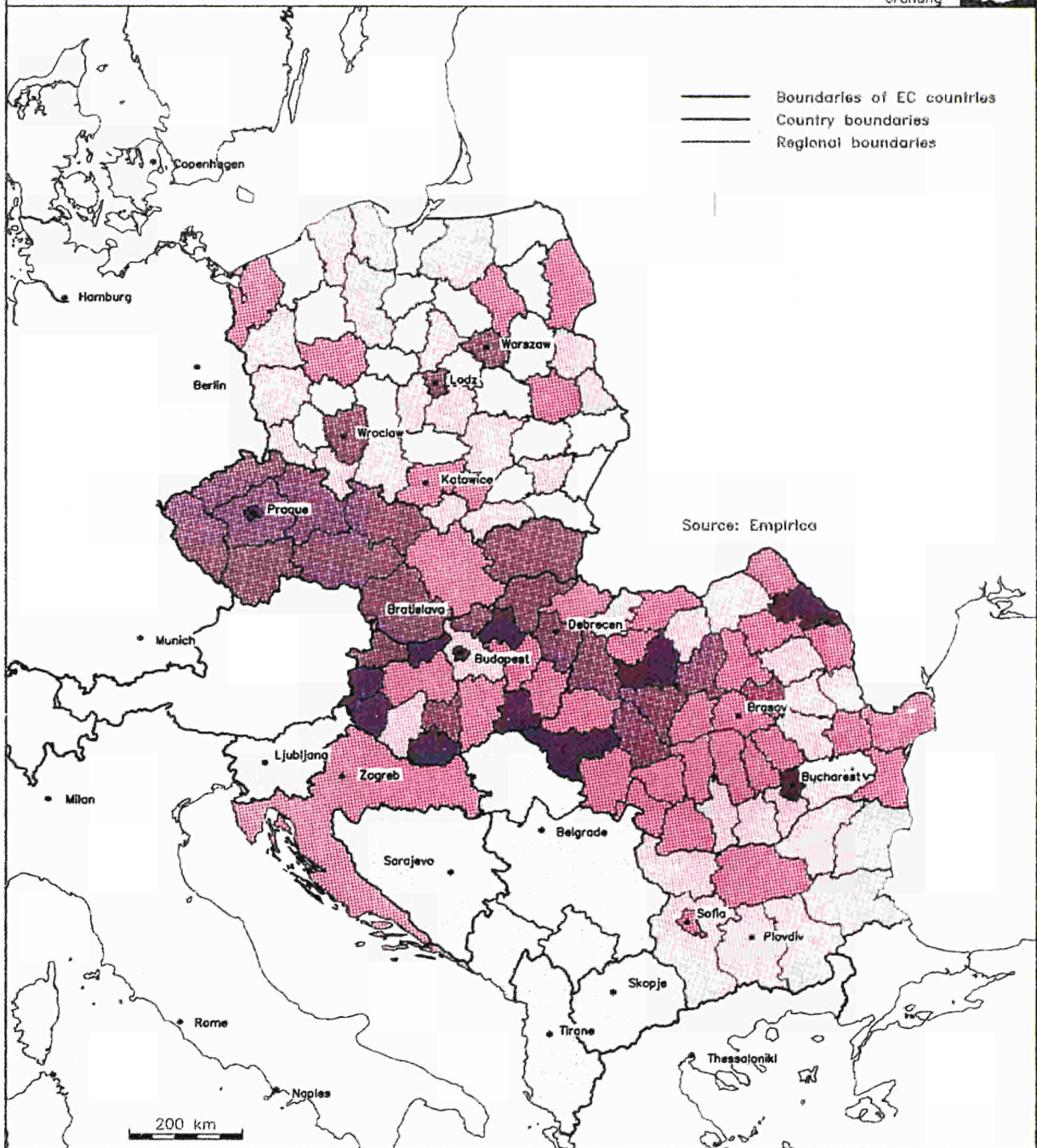
Telephone subscribers per 1000
Inhabitants in 1990
(Bulgaria: 1991)



Minimum: 15
Maximum: 692
Mean value: 129



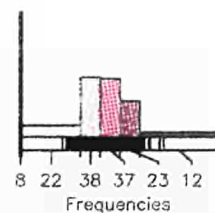
Map 13
Health services



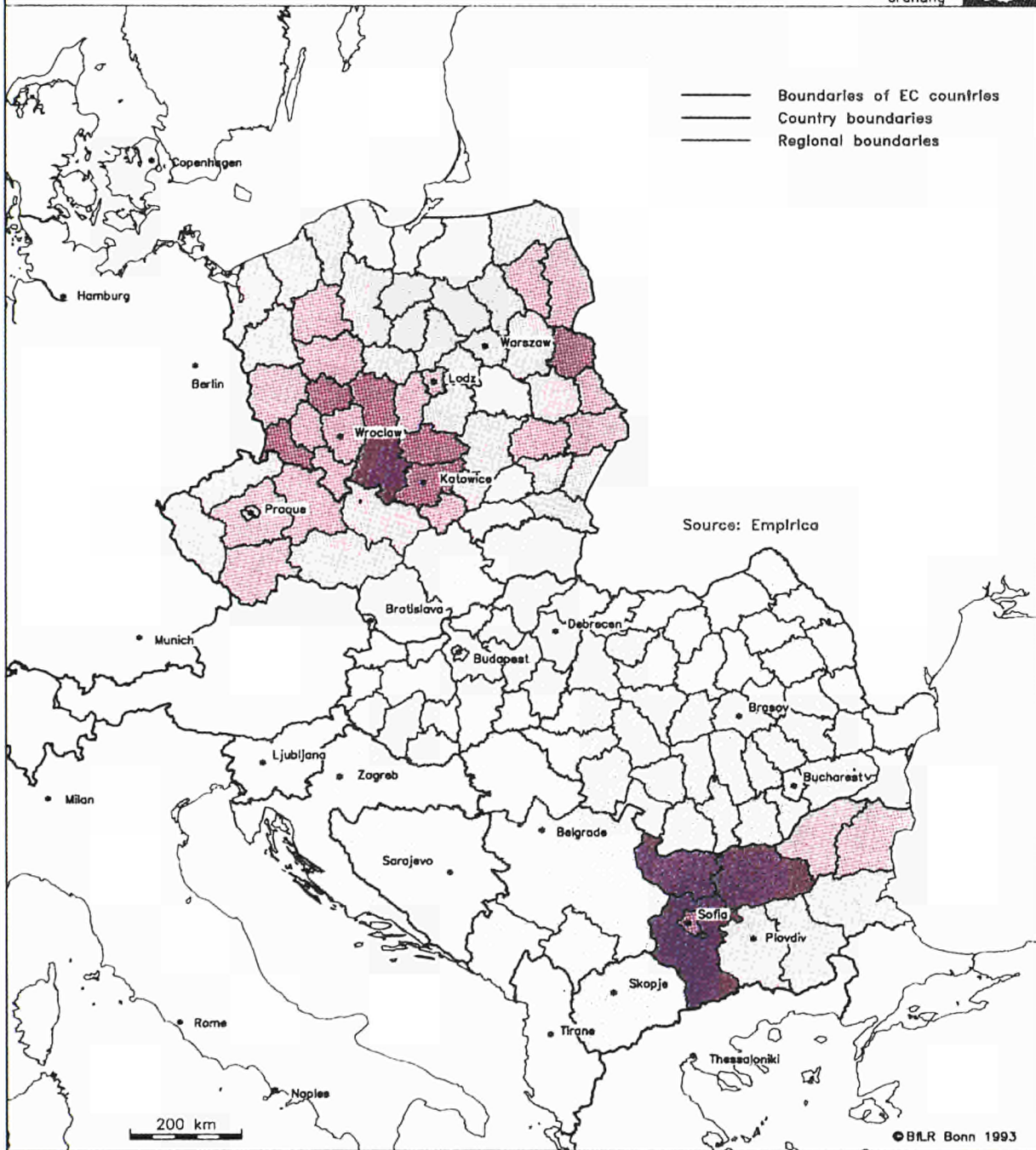
Standardized indicator of
physicians and hospital beds
in 1990 (Bulgaria: 1991)



Minimum: 20.8
Maximum: 100.0
Mean value: 42.2

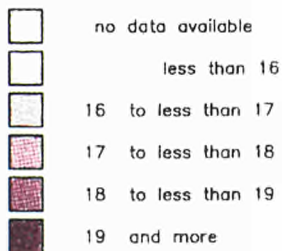


Map 14
Dwelling space

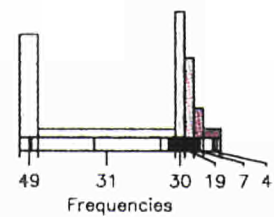


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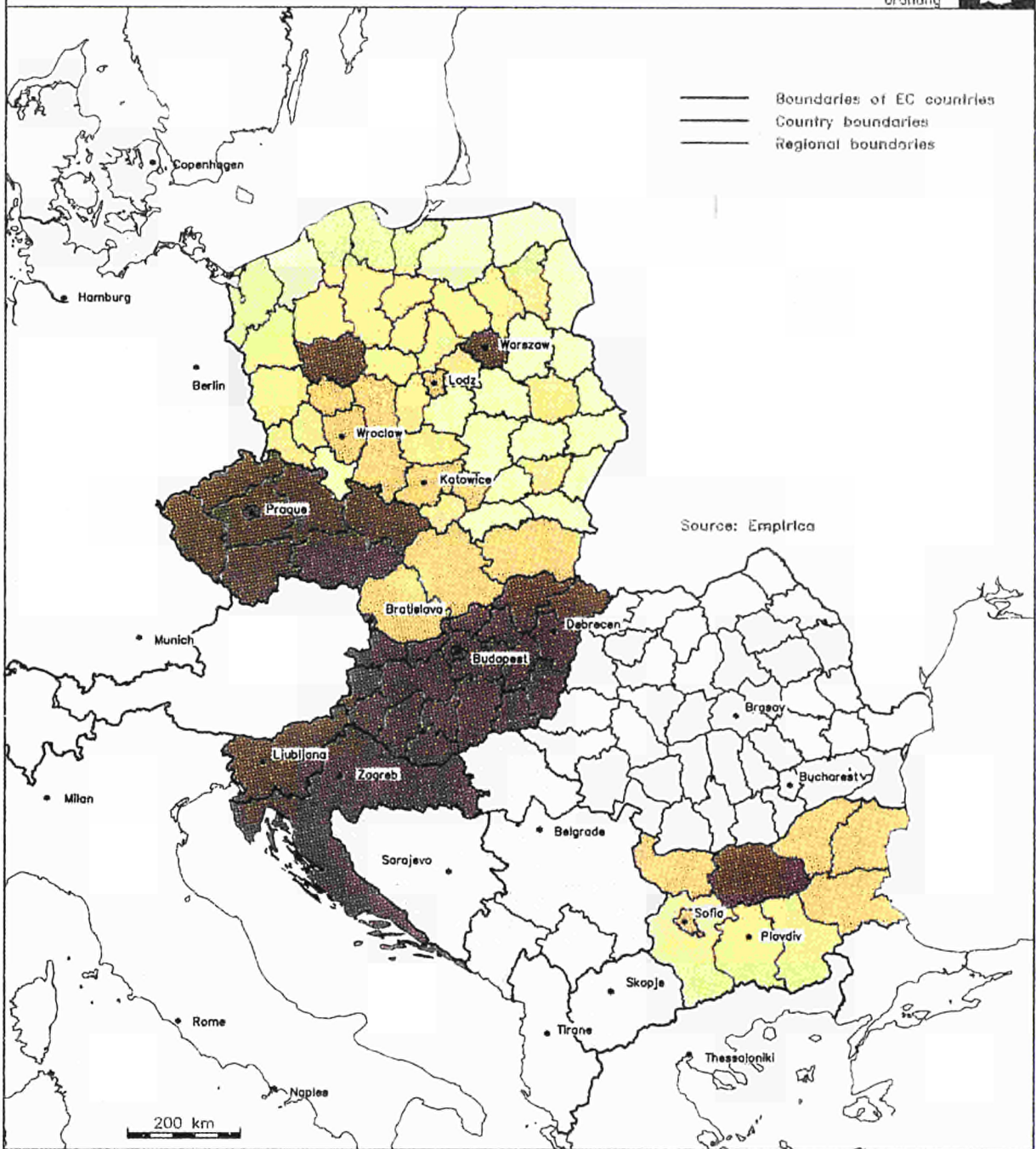
Average dwelling space in m²
per inhabitant in 1990
(Hungary: national value)



Minimum: 7.1
Maximum: 20.9
Mean value: 16.9



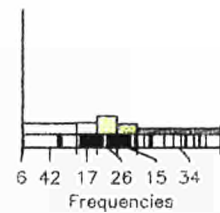
Map 15 Car ownership



Passenger cars per 1000 inhabitants
in 1990 (Hungary and Romania:
national values)



Minimum: 1
Maximum: 294
Mean value: 122



heating, etc. In Poland, for instance, only 64.7% of the dwellings in the country had tap water, 51.9% a bathroom and only 5.7% were connected to the gas main in 1990. Dwellings in the Polish towns were much better equipped though: 95.1% had tap water, 83.0% a bathroom and 71.4% were connected to the gas main (Kuklinski 1992). It may be assumed that the quality standard of dwellings is still lower in countries like Bulgaria, Romania, the Baltic States, CIS and Albania.

2.4. Ethnic tensions and conflict regions

Nearly all States in Central and Eastern Europe are ethnically diversified societies; ethnic minorities account for a large proportion of the national population in some of them (e.g. almost 15% in Slovakia and Bulgaria and 11% in Romania). To give some absolute figures: in 1990 around 600 000 Hungarians lived in the Czech Republic and Slovakia, mostly in central and east Slovakia, 116 000 Slovaks lived in Hungary, 1.5 million Albanians in Kosovo (only three fourths of all Albanians live in Albania), 760 000 Turks in Bulgaria, 1.1 million Poles in the former Soviet Republics including 430 000 in Belarus and 285 000 in Lithuania. The

proportion of other nationalities, mostly Russians, in the Baltic countries is particularly high (35.3% in Estonia, 46.3% in Latvia and 19.9% in Lithuania). The same is true of Moldova (36.1%) and the Ukraine (26.4%). Approximately 28 million Russians live at present in other former Soviet Republics (i.e. outside Russia) (see Table 4).

Since 1990 separatist trends have spread through many parts of Central and Eastern Europe, and these are increasingly exploding into ethnic conflicts. In many parts of Central and Eastern Europe there are more or less widespread feelings of resentment against Russians who, as 'relics' from the period of occupation, are not welcomed and are discriminated against. This is especially true of the Baltic States, where around 2.5 million Russians still live, originally settling as soldiers or as civil sector workers (within the framework of a former government plan for the Russianization of the region) and who — as shown by the exclusion of Russians from the parliamentary elections in Estonia in September 1992 — are increasingly discriminated against.

Problems with minorities and ethnic tensions are particularly severe in some regions due to the composition of the local population and/or because of the specific political and socio-eco-

Table 4: Breakdown of national population by main ethnic groups in Central and Eastern Europe, 1990

(as percent of population)

Country	Main ethnic groups, 1990					
Poland	98.7	Polish	0.6	Ukrainian	0.5	Belarussian
Hungary	96.6	Hungarian	1.6	German	1.1	Slovak
Czech Republic	94.5	Czech and Moravian	3.0	Slovak	0.6	Hungarian
Slovakia	85.6	Slovak	10.8	Hungarian	1.5	Romanian
Bulgaria	85.3	Bulgarian	8.5	Turk	2.5	Macedonian
Romania	89.1	Romanian	7.8	Hungarian	1.5	German
Estonia	64.7	Estonian	27.9	Russian	2.5	Ukrainian
Latvia	53.7	Latvian	32.8	Russian	4.5	Belarussian
Lithuania	80.1	Lithuanian	8.6	Russian	7.7	Polish
Moldova	63.9	Moldovan	14.2	Ukrainian	12.8	Russian
Ukraine	73.6	Ukrainian	21.1	Russian	1.3	Jewish
Armenia	89.7	Armenian	5.5	Azerbaijani	2.3	Russian
Azerbaijan	78.1	Azerbaijani	7.9	Russian	7.9	Armenian
Uzbekistan	68.7	Uzbek	10.8	Russian	4.2	Tatar
Tadjikistan	58.8	Tadjik	22.9	Uzbek	10.4	Russian
Georgia	68.8	Georgian	9.0	Armenian	7.4	Russian
Kazakhstan	40.8	Russian	36.0	Kazakh	6.1	Ukrainian
Kyrgyzstan	40.7	Kyrgyz	22.0	Russian	10.3	Uzbek
Russia	82.6	Russian	3.6	Tatar	2.7	Ukrainian
Belarus	79.4	Belarussian	11.9	Russian	4.2	Polish
Turkmenistan	68.4	Turkmen	12.6	Russian	8.5	Uzbek

Source: Empirica Regional Monitor.

conomic conditions. This includes above all the Russian/Ukrainian border region to Moldova, conflicts between Kosovo and Albania and the problems of the Turkish minority in south-eastern Bulgaria.

But also the relatively advanced countries — Hungary, Poland and the Czech Republic and Slovakia — harbour ethnic conflict potentials. Thus the situation in southern and central Slovakia is tense due to the increasing tide of resentment against the Hungarians living there which has been fostered by the separation of the CSFR. In the south of Hungary social problems are intensifying due to the dramatic influx of refugees from former Yugoslavia (approximately 100 000 by mid-1992) who have settled predominantly in areas near to the borders with Slovenia and Croatia. Finally, in the eastern border regions of Poland there are increasingly frequent conflicts between Polish and Russians and other nationalities from the former Soviet Union who, as competitors for scarce jobs and as suppliers of cheap goods on semi-legal markets, increasingly give rise to aggression on the part of the native population. Generally these ethnic tensions jeopardize the political stability of the affected countries.

2.5. Migration

The wide economic gap between the countries and regions of Central and Eastern Europe, ethnic tensions and conflicts and the political processes of opening up these countries (liberalization of travel and emigration, growing international tourism, etc.) have led to immense migratory movements since the beginning of the reform processes.

International migration

Between 1989 and 1991 the former Soviet Union and Romania witnessed the largest waves of emigration. In 1990 approximately 452 262 emigrants (twice as many as in 1989) left the territory of the former Soviet Union, the majority from Russia and the Ukraine. Of these 59% went to Israel and 31.3% (141 558) to Germany.⁸ In 1991 the number of the latter again rose to 147 320. In Romania the largest exoduses have been from Transylvania and Moldova, the poorest parts of the country. A great number of emigrants were ethnic Germans (32 178 in 1991) and ethnic Hungarians who went

⁸ An estimated 2 million ethnic Germans still live in the former Soviet Union, and around 200 000 in Romania.

to the countries of their ethnic origin as well as Roma and Sinti coming to West European countries as asylum seekers. Moreover about 100 000 ethnic Greeks-Pontii from the former Soviet Union entered Greece since 1989-90, during 1991-92 more than 200 000 Albanians, including ethnic Greeks, entered Greece.

In contrast, the wave of emigrants leaving Poland has slackened off since 1990. In 1989 around 250 340 ethnic Germans left Poland, the majority from upper Silesia and east Pomerania, where most ethnic Germans live. In 1990 the number of the 'Aussiedler' decreased to 113 253 and dropped down to 40 129 in 1991, 14 140 of which came from upper Silesia.⁹

In Bulgaria the outflow concerns mainly the Turkish minority. Between April and August 1992 an estimated 32 000 of them left the country (in 1992 about 1 million lived in Bulgaria), especially from the southern regions. The commune of Kroumovgrad (south-eastern Bulgaria), for example which had a population of 50 000 in 1989, 40% of which were of Turkish descent, saw 12 000 people emigrate in 1989 and another 11 000 between May and June 1992 alone.

Comparatively small numbers of emigrants were reported from Hungary, the Czech Republic and Slovakia (exception: a relatively large flow of ethnic Hungarians from Slovakia to Hungary). However, the migratory movements to the West have led to considerable problems which have to do with the structure and level of training and qualification of migrants. Emigrants are for the most part highly qualified. In the case of Hungary, for example, since 1989 around 15% of all technicians and college graduates have emigrated, and up to one-third of all R&D staff have left Budapest for Western countries (Inotai 1992). In the case of Poland, between 1983 and 1987 15% of all emigrants who left the country had completed post-secondary education. This brain drain of a total of 59 600 people is nearly equivalent to the annual average of students leaving university (Okolski 1991). On the other hand, immigrants tend to be industrial and agricultural workers with a relatively low level of training (Korcelli 1992).

Hungary, Poland, the Czech Republic and Slovakia are experiencing increasing numbers of immigrants, who are moving to the relatively prosperous regions of Central and Eastern Europe for ethnic and/or economic reasons (see empirica

⁹ At present an estimated 700 000 ethnic Germans still live in Poland.

1992c). Thus, migration has led to growing problems not only in Western countries, but also in the countries of destination in Eastern Europe.

Interregional migration

Interregional migratory movements within the individual countries follow the pattern already experienced in the West: i.e. from poorer regions into richer and from rural-peripheral areas into larger towns and conurbations. No detailed migration statistics exist at the regional level for all countries of Central and Eastern Europe. However, the development of the population from 1989 onwards is an indicator of migration, showing the largest population increase in towns and cities (up to 10% increase), while peripheral regions suffered equivalent population decreases (for more details see empirica 1993a).

Interesting to note that recently an emigration trend is recognizable in areas such as east Slovakia, which witnessed large population increases between 1980 and 1988 due to incentives for new businesses to settle there offered in the framework of industrial policy (see Map 2, Chapter 1). Apart from political motives inducing Hungarians to leave Slovakia, the reason could lie in the present economic problems in these regions and the high level of unemployment resulting from the heavy dependence of their industries on the USSR (e.g. arms production).

There are regions which are exposed to both immigration and emigration. This is true for instance of Poland's eastern border regions which have suffered sustained interregional emigration to the major centres for years and at the same time are now witnessing a large influx of immigrants from abroad especially from the former Soviet Republics.¹⁰ The negative migration balance has decreased in Suwalki, for instance from -8.2 per 1 000 inhabitants in 1980 to -2.4 per 1 000 inhabitants in 1990.

As regards the demographic structure there are differences within the individual countries caused *inter alia* by migratory movements.

In some regions there is a close correlation between migratory movements or migration potential and age structure of the population (see Map 16). In Bulgaria, for instance, rapid urbanization over the past two decades has led to a huge

¹⁰ The number of immigrants of Soviet origin living in Poland at present is estimated at approximately 200 000.

migration of young people from rural to urban areas and to an ageing population (with low fertility rates) in the emigration regions (*Statistisches Bundesamt* 1991a).

In contrast, in Poland and Romania with generally relatively young populations, there are regions where nearly one third of the population is under 14 years of age (Novy Sacz: 28.8%, Vaslui: 29.9%). (see Map 16).

Interregional migratory movements from the eastern border regions to major centres have for some time become weaker in Poland as well as in Hungary which is attributable to the difficult employment situation and — especially in Poland — to the disastrous housing situation (see empirica 1993a). But since these regions are the destination of the sustained influx of migrants from abroad the local population see their situation degrade which has already led to considerable social tension and a growing opposition against immigrants.

2.6. Environmental and energy problems — Ecological crisis areas

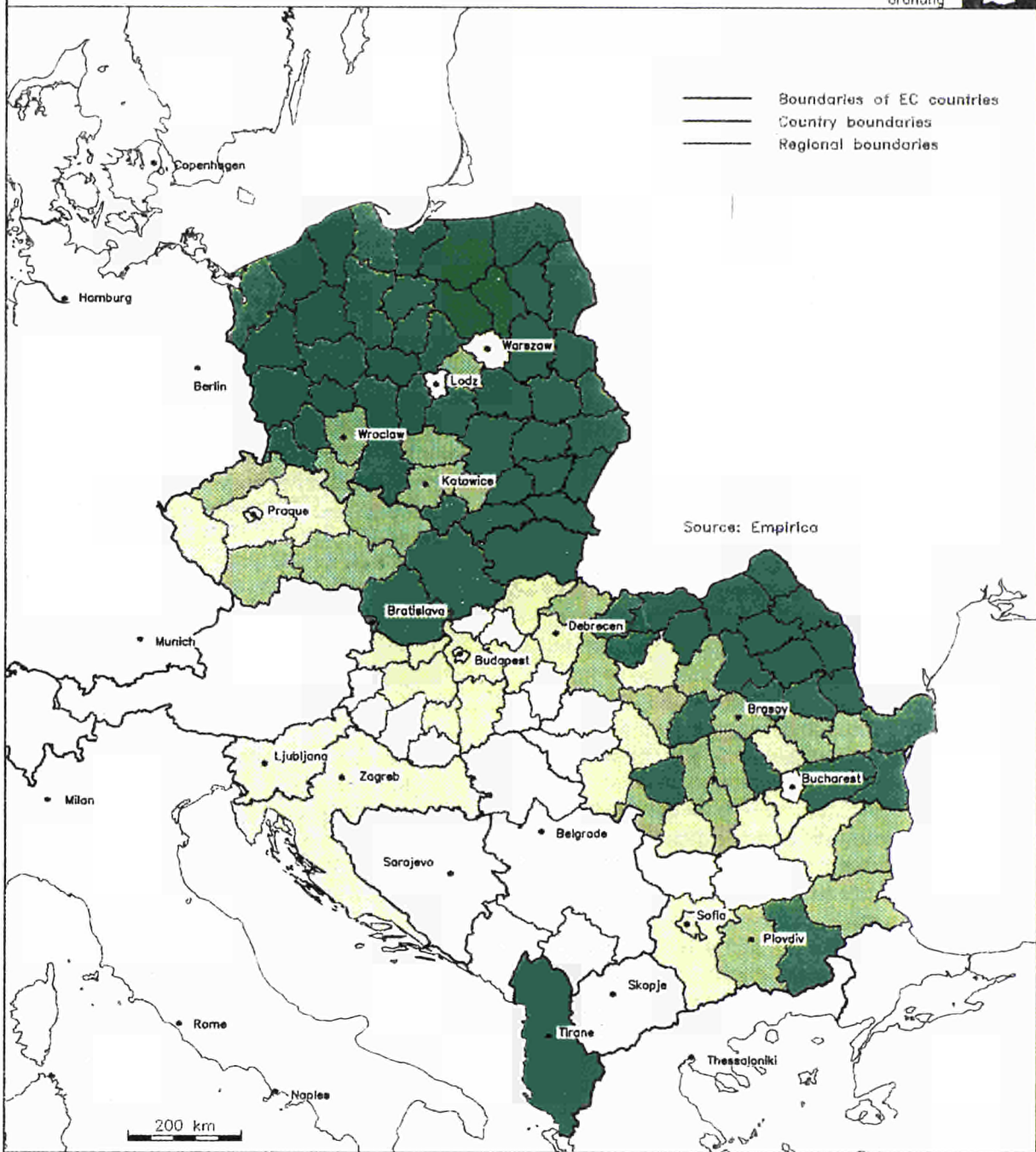
The widespread environmental pollution in Central and Eastern Europe is one of the most critical problems at regional, national and international levels. Neglect of environmental matters over the past decades, biased industrial and agricultural policies aimed only at increased yields and not least the inefficient and wasteful handling of energy sources have together wreaked considerable environmental damage in Central and Eastern Europe.

Air and water pollution¹¹

While in terms of quantity the emission figures for SO₂ (or dust) do not seem exceptionally high (see Figure 11), their true dimension comes into light when related to area and population. A conspicuous case in point is the former GDR which recorded the highest level of SO₂ emissions in Europe both per capita and per km² in 1987, per capita emissions being 12 times higher than in the former FRG (Naujoks 1991).

¹¹ Of course there are also other kinds of pollution (pollution through waste disposal, soil pollution which cause great problems locally (see also empirica 1993a)). But they have only a very limited or indirect impact on the EC and are therefore not dealt with here.

Map 16
Demographic profile



Share of population aged less than 14
in total population in percent 1991
(Bulgaria, Romania, Albania: 1990)

- no data available
- less than 20
- 20 to less than 22
- 22 to less than 24
- 24 to less than 26
- 26 and more

Minimum: 16.0
Maximum: 41.4
Mean value: 23.9

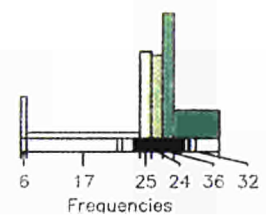
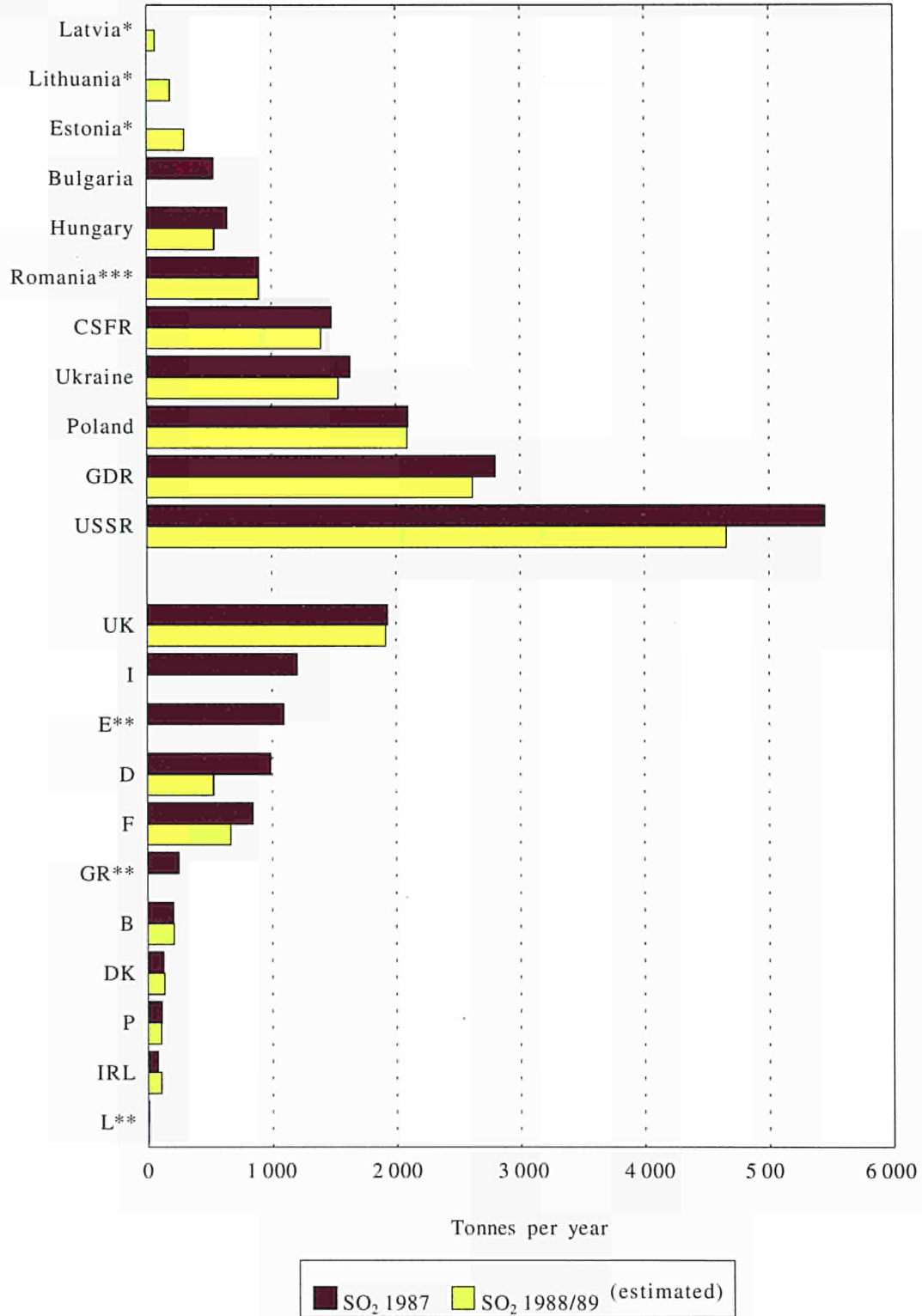


Figure 11: Air pollution — SO₂ emission — in Central and Eastern Europe, 1988/89

(t per year)

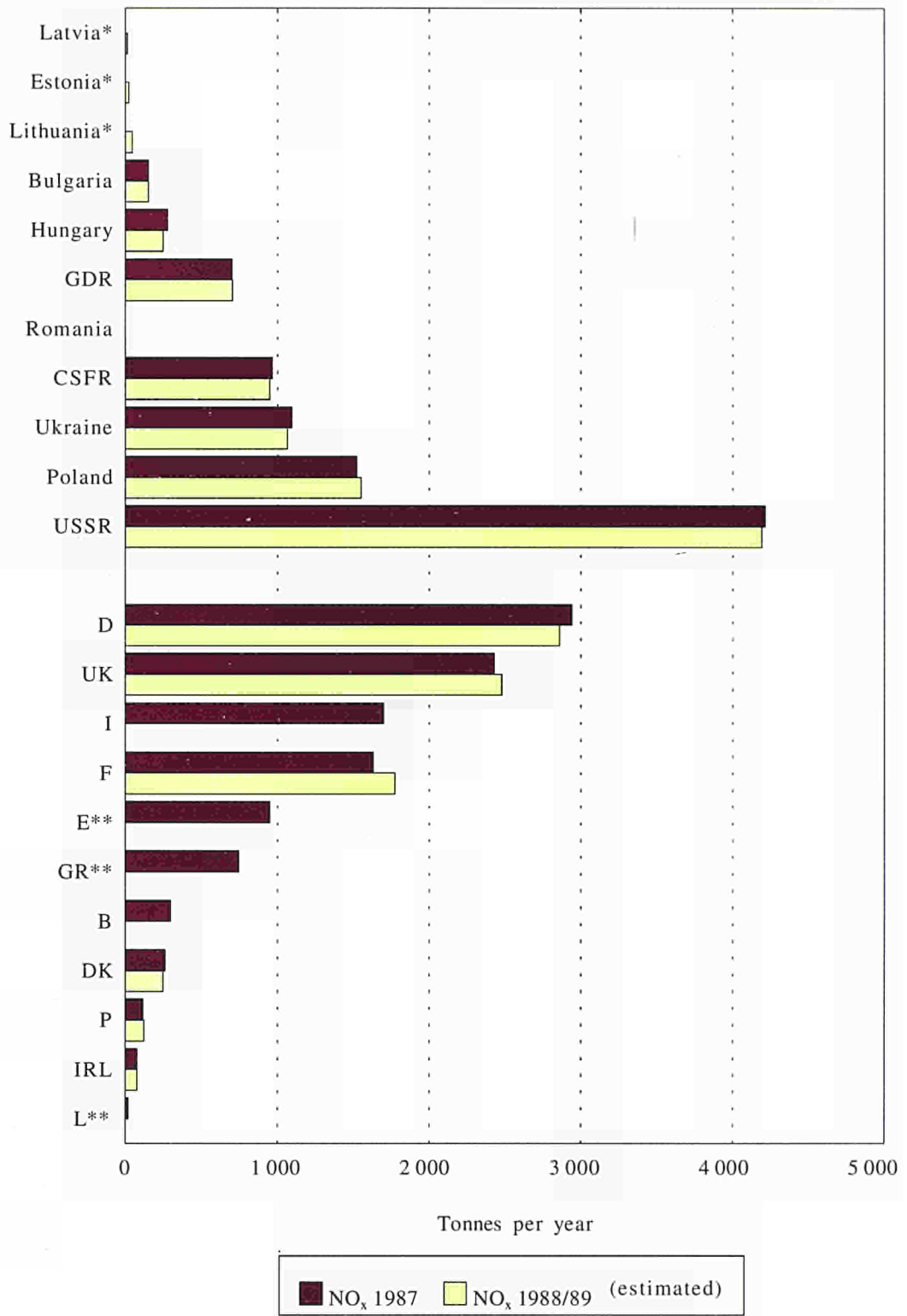


* 1990, ** 1985, *** 1980

Source: EC 1991b.

Figure 12: Air pollution — NO_x emission — in Central and Eastern Europe

(t per year)



* 1990, ** 1985

Source: EC 1991b.

In comparison, NO_x pollution is relatively low and lies below EC average levels, due mainly to the lower degree of motorization in Central and Eastern Europe (see Figure 12).

At the regional level environmental pollution differs widely. Some areas, usually those with a low degree of industrialization and small population density, are relatively free of pollution, while others — so-called 'local hot spots' — are heavily polluted: some are even classified as ecological disaster zones.¹² The most heavily polluted areas are the industrial conurbations in the Czech Republic (north Bohemia along the border to Saxony, east Bohemia along the Elbe, and the area around Prague) and Poland (upper Silesian industrial area, Gdansk bay and the Legnica-Glogow copper basin).

The industrial centres of the region also known as the 'Black' or 'Dirty Triangle' (formed by Upper Silesia, north Bohemia and Saxony) are deemed to form an environmental disaster zone. In some parts of the upper Silesian industrial area gas and dust emissions are up to 200 times higher than Poland's overall average. SO₂ emissions in Chomutov (north Bohemia) are up to 20 times higher than the average for the Czech Republic. The soil, forests and inland waters in these regions are also exceptionally heavily polluted. Even in 1986 58% of the forests in Czech regions were badly damaged and almost 20% of the monitored waterways were heavily contaminated or biologically dead. In Polish districts in the Dirty Triangle 65% of water could no longer be used as drinking water (Welfens 1992).

No disaster areas have been identified in Hungary but even there environmental pollution has reached considerably high levels in some places. The most serious air pollution by SO₂ and dust and water pollution is found in the northern parts of the country where heavy and chemical industries are located, at the industrial sites in north-western Hungary (Tatabanya and Duaujvaros) as well as in the environs of Baranya, Nógrád, Veszprém and Fejér. Also Greater Budapest suffers from water and air pollution above the national average. A good deal of the atmospheric pollution in the latter is caused by the large volume of traffic running through the city in the absence of a motorway bypass (see above). As regards water, there is a considerable need for measures to

improve the water quality of the tributaries of the Theiss river which are seriously polluted, a good deal of the pollutant load originating from the former CSFR and Romania though. Generally, however, the environmental situation in Hungary is less alarming than in Poland, the Czech Republic and Slovakia.

Reliable information on the ecological situation is gradually coming forth also from Bulgaria and Romania even though the statistical data are still fragmentary.¹³ Designated as heavily polluted areas in Bulgaria are the industrial regions — Sofia town, Devnya, Dimitrovgrad (east of Plovdiv), Kardzali (south-east of Plovdiv) and Pirdop (east of Sofia). SO₂ emissions in some parts of Sofia are reported to be 20 times higher than the levels permitted by Bulgarian standards and also the concentration of phenols and lead is 10 and 20 times respectively above the national permissible levels.

In Romania Copca Mica and Media (north of Sibiu) and Slatina (west of Bucharest) have been called hot spots of pollution because of their high SO₂ concentrations (9, 4.5 and 4 times respectively above Romanian permissible levels), besides Bicaz, Ploiesti (north of Bucharest) and Bucharest which are also reported as grossly polluted. In Copca Mica, moreover, the concentration of lead exceeds permissible levels by over 50-fold (empirica 1993a).

In Bulgaria, Romania and Albania water pollution also constitutes a very serious problem. In Bulgaria almost half of the rivers and lakes from which water is taken for drinking purposes show hazardous nitrate levels resulting from agricultural malpractices (see empirica 1993a).

The coastal zones of the Black Sea in all riparian countries are seriously degraded in some places, especially at the entry of the rivers. A very salient feature is the considerable eutrophication of the water and mass dying of sea organisms especially in the delta areas of the rivers Danube, Dnepr and Dneestr.

Environmental pollution in the Baltic States is also considerable; the highest levels of air pollution are found in Lithuania in the industrial locations of Nereta (bordering on Latvia), Druskininkai (bordering on Poland and Belarus) and Polanga (north of the Baltic port of Klaipeda) and in north-east Estonia (Narva, Kohtla-Järve, Sillawäe) where the envi-

¹² To date there is no exhaustive East-Europe-wide collection of environmental pollution data at the regional level. Regional data are available for the Czech Republic, Slovakia and for Poland, but comparability and reliability is often insufficient.

¹³ There are only sample data for very badly polluted areas (e.g. in Romania from Western sources).

ronmentally damaging mining and processing of oil shale is located.

Also the pollution of surface waters is considerable in the Baltic States. A major part of the waste water is discharged untreated or insufficiently treated into the rivers and the Baltic Sea — three-fourths of Lithuania's purification plants are reported not to function properly. The Baltic Sea coast as a consequence is grossly polluted over long stretches (about half of the Baltic States' coast). Recent water tests have shown that the phenol concentration in the Lithuanian rivers is 12 times and in the coastal zones five to six times higher than permissible by Lithuanian standards (see empirica 1993a).

Very high levels of pollution are reported also by the Republics of the former Soviet Union, especially by Russia and Ukraine, where the former Soviet Union's largest coal and steel and heavy industry centres are situated and which has suffered a quarter of the overall environmental damage in the former Soviet Union (Welfens 1992). The most heavily polluted areas are the traditional industrial centres such as the Denez area (southern Ukraine), the southern and central Ural and the Kuznezsk Basin in Russia, which is classified as an environmental disaster zone.

A recent report on the state of the environment by the Russian Ministry of Ecology and National Resources tells of tremendous atmospheric and river pollution (Volga, Don, Ob) which is often several hundred times above the officially conceded ceilings, and of the serious hazards emanating from nuclear waste which had been handled and stored in a grossly reckless manner for several decades. The latter statements are corroborated by the findings of the so-called 'Blue Book', a yet unpublished expert report made on behalf of the Supreme Soviet in 1990 on the nuclear hazards in areas where nuclear power stations and nuclear weapons production are situated. In the region of Kyohtyn (southern Ural) where radioactively contaminated waste water was discharged into the Techa river, it is reported that between 1980 and 1990 the number of cancer cases went up by 21%, of deformities in newborn babies by 23.3% and of patients with blood anomalies by 43.3%. It is estimated that 17 000 people across the former Soviet Union have died of radioactive contamination. Also the consequences of the nuclear fall-out from the Chernobyl reactor accident is believed to have been much more serious than originally reported. According to the report, some 2.5 million people in 7 700 towns and villages are living on contaminated soil. (New Scientist 2.1.1993)

Transborder pollution

Environmental pollution in Central and Eastern Europe is not confined to individual countries — it is a problem which transcends national boundaries, as the Dirty Triangle dramatically demonstrates. Thus forests in some regions are damaged by acid rain caused by SO₂ emissions from industrial locations outside national borders. An example of this is the Erzgebirge (Ore Mountains), one of the most heavily polluted areas in the new German *Länder*, which has been damaged largely by emissions from north Bohemia. In reverse, the Riesengebirge (Giant Mountains) on the Czech side have been heavily polluted by air pollution arising from Polish and German emissions.

Also countries which are located far away from the sources of pollution can be substantially affected by pollutants carried over long distances. This is particularly true of the Scandinavian countries, in particular their southern regions and clearly visible in the acidification of lakes from acid rains and the mercury content in fish in these lakes. Even though mercury emissions in Sweden have been drastically curtailed since the late 1960s, there has been no decrease in the mercury content in fish but rather an increase; the same holds true for Finland, so that the only explanation for the rising mercury content in fish can be the increased load of atmospheric mercury (United Nations 1991).

The international dimension of environmental destruction is also clearly visible in the pollution of rivers and seas. Several rivers like the Elbe, Oder, and Danube receive pollutants from several riparian countries which they eventually discharge into the North Sea, Baltic Sea and Black Sea, substantially contributing to the latter's degradation.

The Elbe river is seriously contaminated with chloride salts and heavy metals when it reaches the border of the West German *Länder*. The catchment area of the river Elbe covers the whole of Bohemia, a third of the Czech Republic's and Slovakia's area and up to four-fifths of the new German *Länder* where, over one-third of its total length, the river receives 80% of its load of pollutants. Between 8 and 16% of pollutants are estimated to originate in the Czech Republic and Slovakia. The Elbe contributes a great deal to the pollution of the North Sea: in 1990 the former GDR, the Czech Republic and Slovakia together accounted for 94% of the North Sea's lead pollution, for 98% of its cadmium and zinc pollution and for 99% of its mercury pollution (Friedrich-Ebert-Stiftung 1991).

Energy consumption

The environmental problems in Central and Eastern Europe are closely connected to inefficient and wasteful energy consumption. The high proportion of solid fuels, often of low-quality, is thus the main cause of the high concentration of pollutants such as SO₂, CO₂ and dust particles in the air. A comparison with the EC shows that the consumption structure in the individual countries is almost reverse (see Figure 13).

Moreover, outdated and inefficient technologies used for energy conversion and heavily subsidized energy prices in the past have led to immense wastage of energy. Measured against GDP at the end of the 1980s energy intensity was double the EC average (see Figure 14).

Official data concerning possible changes to energy intensity and the structure of consumption in 1991 and 1992 are not available at present. However, it may be assumed that although energy intensity and energy consumption have decreased it is rather the result of the closure or reduction in capacity of inefficient, outdated plants than of a new approach to energy and environment. Also the decline in domestic consumption of energy is thought to be attributable to reduced purchasing power or increased energy prices rather than to a significant change in consumption habits.

From the environmental point of view it must even be feared that the proportion of solid fuels in total consumption has increased, since Soviet imports of crude oil and natural gas are increasingly being replaced due to increasing prices by domestic reserves such as coal where these are available.

Environmental renewal

Environmental renewal in Central and Eastern Europe has been accorded a high value since the beginning of the reform processes. Environmental consciousness is very high, particularly in Hungary, Poland, the Czech Republic and Slovakia (see opposition from Slovakian and Hungarian environmental protection groups to the diversion of the Danube (Gabcikovo-Nagymaros project)). Reports on environmental damage which had previously been kept secret are now openly discussed and in all countries (except for Albania) national ministries and authorities have been set up to deal with environmental matters (see empirica 1992a). However, so far real progress can

hardly be recognized. This is partly due to the inefficient control system (lack of suitable monitoring equipment) and the lax punishment of environmental polluters. On the other hand, in view of their serious socioeconomic problems and financial weakness the countries of Central and Eastern Europe are not in a position to bring about environmental renewal on their own apart from closing down production plants.

The volume of investment needed for the renewal/improvement of the energy industry, which is in turn imperative to improve the quality of the air, has been estimated at between ECU 960 and 1 600 billion (see EC 1991a, European Parliament 1991), over a period of 15 to 30 years. Also the measures to remove security risks will be a very costly task. In this context it should be pointed to the legacy of old pollution (in particular nuclear waste and heavy metal pollution) the scale of which is by no means visible yet and the costs of rectifying this damage cannot be estimated at present.

Many international actions and bodies dealing with environmental projects are now being promoted and financed with EC support in particular and environmental technologies are also being introduced. Mention should be made of environmental projects within the framework of the European Communities' PHARE and TACIS programmes, of World Bank loans and of bilateral projects (such as the German-Czech and German-Polish cooperation to rehabilitate the Elbe and Oder rivers).

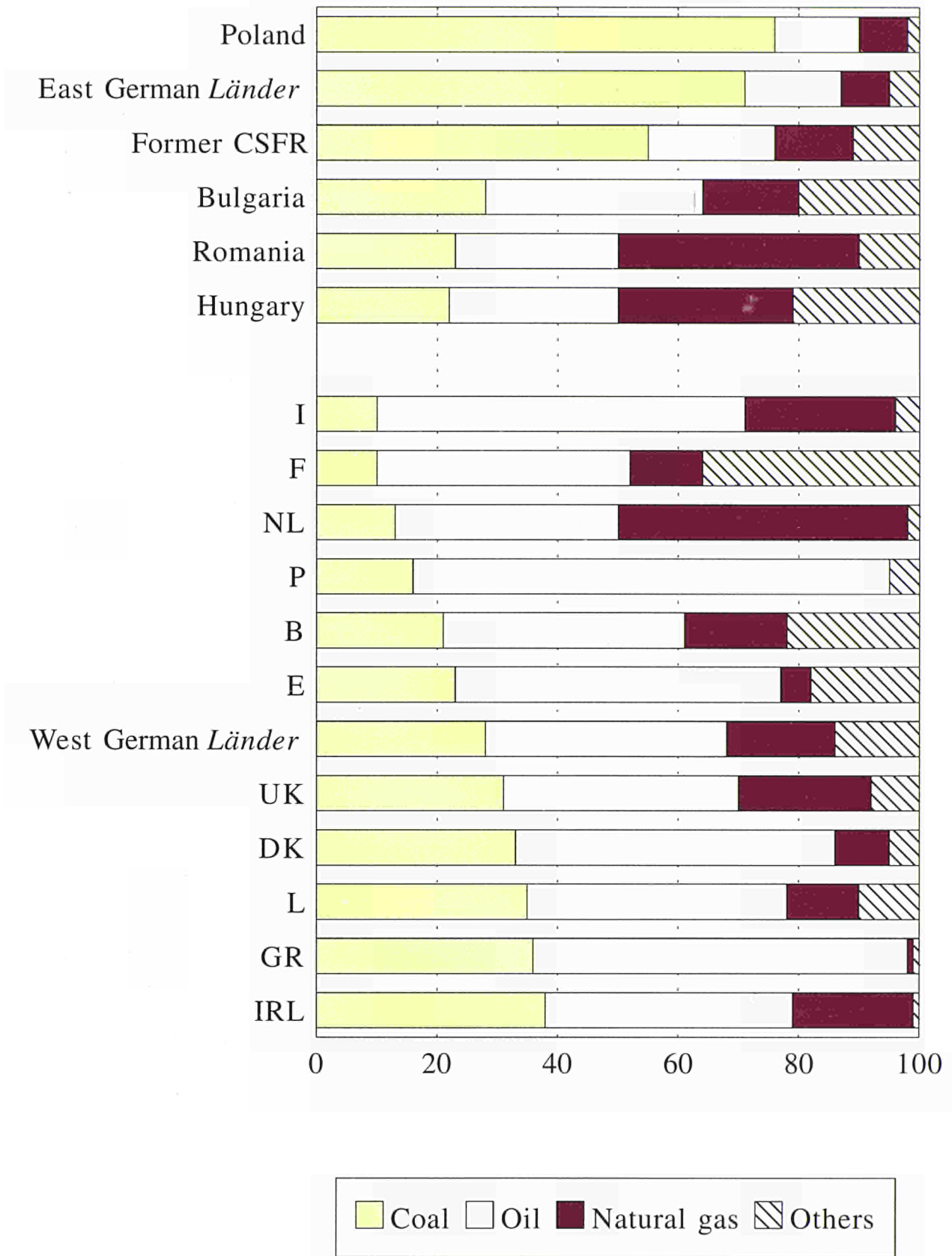
2.7. Border and transit areas

Since the beginning of the reform processes and the opening up of Central and Eastern Europe, there has been a distinct intensification of the cross-border relations between the border regions of western Poland, west Bohemia, Albania, the former Yugoslavian Republic of Macedonia, southern Bulgaria and Slovenia and their respective EC neighbours — relations which had been cut off almost completely during the years of the Iron Curtain. This development is manifest in:

- (i) a sharp increase in travel activity between border regions;
- (ii) an increase in transit and commuter traffic;

Figure 13: Structure of energy consumption, 1989

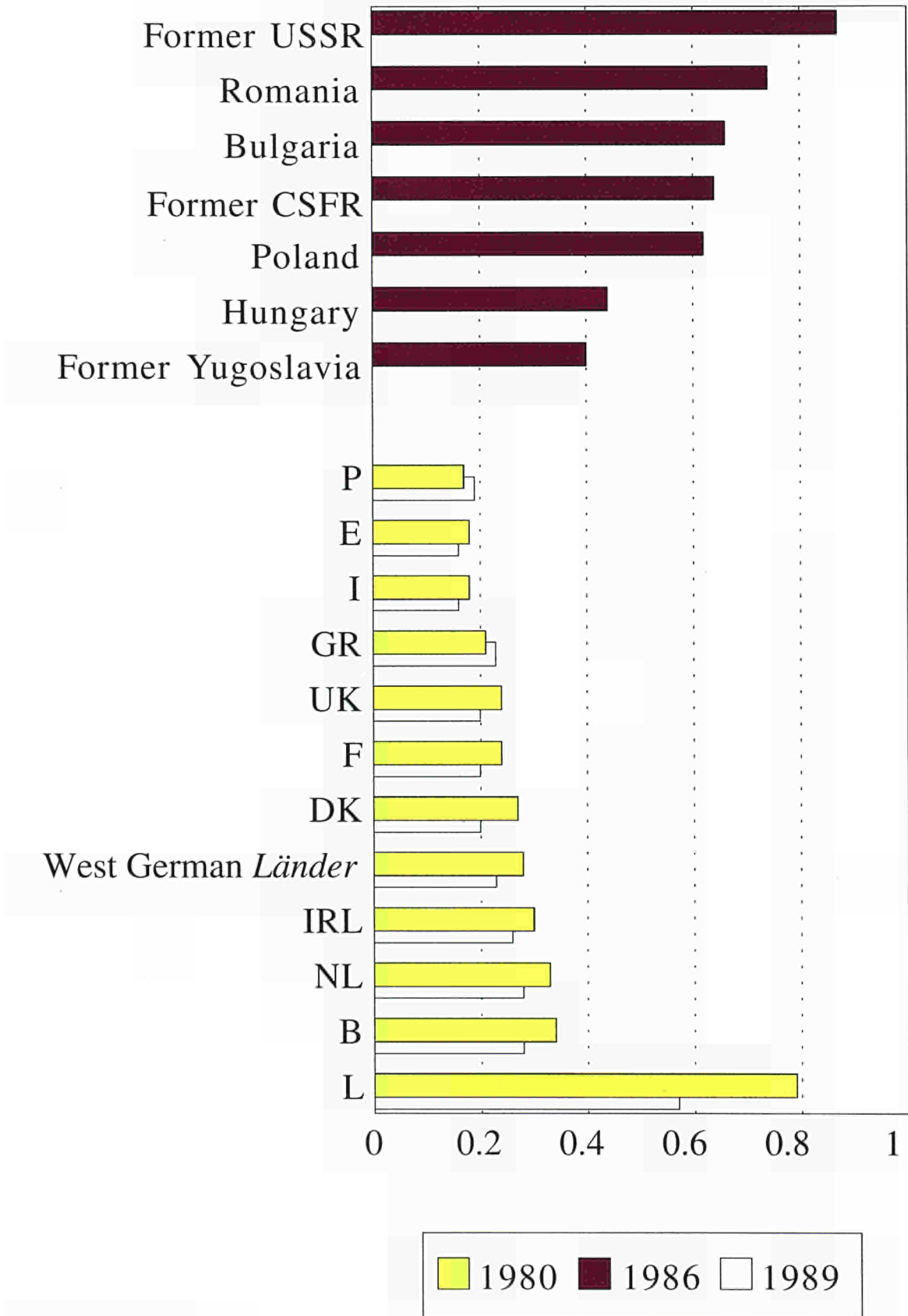
(as percent of total energy consumption)



Source: EC 1992, empirica Regional Monitor.

Figure 14: Primary energy intensity, 1986-89

(kg oil equivalent per USD GDP)



Source: Russel 1991, OECD 1991a.

- (iii) an intensification of contacts between local authorities and enterprises and the development of cultural exchange;
- (iv) an implementation or planning of joint projects in the fields of infrastructure, energy and environment;
- (v) an increasing competition on a range of markets (investment market, labour market, sales market, etc.) and cross-border cooperation (increasing number of joint ventures and cooperation via outsourcing between enterprises).

The higher degree of interpenetration of the border regions is attributable not only to the geographical proximity of the regions concerned but also to the close traditional, cultural and ethnic ties among some of them although these were severed in the communist era.

Often similar locational conditions and problems, for example, similar natural and demographic conditions, infrastructural and economic weaknesses, prevail in the regions along the borders, which make closer cooperation look logical and offer opportunities for cooperation, though these have hardly been exploited so far. In view of the short period of restructuring, relations are necessarily still in the early stages of development and genuine interaction not yet evident. Moreover, the present relations between the border regions are not free from problems or even tensions. The differences in living and working conditions and the considerable price and wage differentials have given rise to considerable migratory movements, 'shopping tourism' and competition for jobs and investment which represent conflict potentials on both sides of the border.

The border areas differ considerably among one another as regards the degree of interpenetration and the intensity of the collaborative and competitive relations among the constituting regions. The degree of intra-area interpenetration and cooperation/competition is in fact greatly determined by the political, economic and social developments and adjustment processes of the respective countries of Central and Eastern Europe.

There are four border areas along the frontier between the EC territory and Central and Eastern Europe:

1. The Polish-German border area, comprising the waywodeship of Szczecin, Gorzów, Zielona Góra and Jelenia Góra in western Poland and, on

the German side, the border regions of Mecklenburg-Western Pomerania, Brandenburg and Saxony.

2. The Czech-German border area comprising west Bohemia, north Bohemia and border regions of Saxony and Bavaria (upper Frankonia and upper Palatinate).

3. The south-east European border area comprising border regions of Albania, the former Yugoslavian Republic of Macedonia and southern Bulgaria (Haskovo, Plovdiv, Sofia region) and the respective Greek border regions (east Macedonia and Thrace, central Macedonia, west Macedonia and Epirus).

4. The Slovenian-Italian border area comprising Slovenia and the Italian border regions of Friuli-Venezia Giulia and Puglia.

Below, the border areas are portrayed, with the aid of spatial indicators with details for each of them on the current level of cooperation, on problems and conflict potentials and on projects planned with the respective neighbouring countries.

The Polish-German border area

The Polish-German border area (comprising the abovementioned regions) covers 17 890 km in extent and has some 11.9 million inhabitants (1990). A salient feature is its borderline which is marked by the Oder and Neiße rivers stretching over 460 km altogether.

The regions on both sides of the border differ considerably in terms of demographic and economic indicators. As regards population density, the southern parts on both sides are the most densely populated. In the central and northern parts a rather heterogeneous picture emerges. While the conglomerations of Frankfurt/Oder, Eisenhüttenstadt and Schwedt in the central part on the German side as well as around Szczecin in the north on the Polish side show the highest population density, the northern parts on the German side and the central parts on the Polish side are sparsely populated. Generally, the population density in the Polish border region is very low (87.55 inhabitants/km²) which is about 70% of the national average. (The German border regions Brandenburg and Mecklenburg-Western Pomerania have a similarly low population density, see Table 5.) Whereas the German border region wit-

nessed a steady decrease in population between 1980 and 1989 as a result of declining birthrates and emigration, the Polish region has recorded a slight increase in population (migration losses have been offset by natural population growth) and a relatively young population.

The border area provides also a very heterogeneous picture as regards economic strength and structure: major industrial locations are found in the densely populated southern and central parts on the German side, in the southern part of the Polish border region and in the conglomeration area of Szczecin, an important economic and cultural centre of north-western Poland, while the sparsely populated zones on the Polish side along the borderline and Mecklenburg-Western Pomerania are dominated by agriculture and forestry (see Table 5).

The regions on both sides of the border suffer from economic difficulties and the resulting problems which still hamper cross-border cooperation considerably. In fact, in the German region there has been steady emigration since 1989 and fierce competition for jobs between the resident population and Polish migrant workers attracted by the much higher wages, while the Polish region has to put up with a lot of shopping tourism from the German side.

Other problems presenting a major obstacle to closer contacts are the inadequate telecommunications links between the border regions; communication via the telephone, for instance, is still very difficult. Or traffic and transport links across the border, which are still absolutely inadequate and need to be improved considerably not only to facilitate cross-border cooperation but also to cope with the tremendously increasing transit traffic. (At present it takes lorries up to 36 hours to

pass the checkpoint.) To date there are 11 border crossing points for road transport, four railway crossing points and one ferry across the Oder river.

In the field of transport infrastructure a number of projects are already underway. For instance it is planned to open another 24 road crossing points and one railway crossing by 1994. The main aim is to relieve the heavily overcrowded crossing points on the major transport corridors (Berlin-Szczecin, Berlin-Poznan, Berlin-Wroclaw and Dresden-Krakow). The planned crossing point of Rosow/Rosowko in particular and its link-up to the Berlin-Szczecin road are expected to help relieve substantially the crossing point at Pomellen/Kolbaskowo and to improve the accessibility and economic opportunities of the hinterland. However, to ensure effective relief for the currently used crossing points and corridors and to avert excessive strain from the ever more frequented transit regions, it will be necessary to improve the feeder roads and to build (new) bypass roads around the frontier towns affected.

As regards potentials and opportunities for cooperation in the border area, a promising field could be the Oder-Neiße river area, an economic artery which could become increasingly important. It is for this reason that the rehabilitation and economic development of this area has been given high priority. It is planned for instance:

- (i) to modernize and extend the river- and harbour-related infrastructure especially in the agglomeration areas of Szczecin, Schwedt and Eisenhüttenstadt, in order to respond to the growing importance of Oder and Neiße for passenger and freight transport;
- (ii) to set up and expand industrial parks and business centres;

Table 5: Demographic and economic profile, 1990

	Population density	Migration pressure index *	Agriculture	Share in total workforce 1991		Private services
	1991	1991		Manufacturing	Construction	
Szczecin	97.77	42.50	6.22	11.89	3.13	11.22
Gorzow	59.26	48.08	8.66	11.95	2.06	8.13
Zielona Gora	74.71	47.25	6.56	14.70	1.91	8.66
Jelenia Gora	118.47	42.24	3.02	19.44	1.65	7.23
Brandenburg	88.70	34.26	1.44	5.48	1.75	14.63
Mecklenburg-Western Pomerania	80.70	37.45	4.10	10.30	2.55	14.17
Saxony	259.79	32.22	1.74	5.76	1.19	7.27

* Migration pressure index: ratio of 0-14 years old to (15-64 and 65+ years old), the figures in brackets being weighted by 0.5.

Source: Empirica Regional Monitor.

- (iii) to clean up the Oder and Neiße rivers and to expand or establish nature conservation and recreation areas (e.g. Lower Oder, nature park of Oberlausitz, Oder island near Kostrzyn).

This latter measure is especially important in the light of the high degree of environmental pollution in the area. Water and air pollution constitutes a common problem for the entire area and therefore calls for cooperation across the border (see Table 6).

Efforts are also made to intensify the cooperation between those towns which formerly had been one but were cut into two by the Oder-Neiße borderline as a result of the second World War (e.g. Frankfurt/Oder-Slubice, Guben-Gubin, Görlitz-Zgorzelec).

In the northern parts of the border area there are opportunities for cooperation in the traditional sectors — the food industry, timber and paper processing and the tourist industry. There are, for instance, plans to build an amusement park in Haselberg (close to Bad Freienwalde) covering approximately 150 ha, which should considerably increase the attractiveness of the region for tourists and recreation-seekers. Competition exists between German Baltic Sea ports and the Szczecin port, which is to be modernized using Hamburg as a model, and to be developed as a container port. The corridor between Szczecin and Berlin is looked upon as a future development axis which could trigger off impetuses to growth in the Szczecin region (*Institut für Angewandte Wirtschaftsforschung* 1992).

Table 6: Air pollution and water purification, 1990

	t/km ²	SO ₂ - emission t/inhabitants	Treated waste water % of total waste water 1990
	1990	1990	
Szczecin	7.77	0.08	61.50
Gorzow	1.04	0.02	92.40
Zielona Gora	0.86	0.01	35.10
Jelenia Gora	37.55	0.32	89.20
Brandenburg	42.76	0.48	83.00
Mecklenburg- Western Pomerania	6.53	0.08	90.00
Saxony	106.84	0.41	49.00

Source: Empirica Regional Monitor, *Institut für Angewandte Wirtschaftsforschung* 1992.

Although the industrial sector in the central parts of the border area is currently experiencing con-

siderable problems in adjusting to the new conditions, development prospects are not regarded as negative since Frankfurt/Oder-Slubice and Cottbus-Slubice form two important cross-border transport corridors which, together with the Oder river, could provide an incentive for new businesses to settle in the region.

Cooperation has so far been developed most in the southern parts of the Polish-German border area. In the medium term the area is expected to witness increased commuter traffic or even the development of a common labour market. The supra-regional axis formed by Dresden-Görlitz-Krakow is expected to give a strong impulse to growth in the regions on both sides of the border, key projects being the Dresden-Görlitz motorway link on the German side and the corresponding extension, linking up with Katowice and Krakow.

The Czech-German border area

In 1990, the formation of the so-called Euregio Egrensis between border regions of Bohemia, Bavaria and Saxony was seen. It covers an area of 15 500 km² and has a population of 1.7 million.¹⁴ The Euregio encompasses four counties of west Bohemia including the towns of Cheb and Karlovy Vary, six counties of Saxony (NUTS 2 region of Chemnitz) and seven counties of Bavaria (NUTS 2 regions of Upper Frankonia and Upper Palatinate).

At the moment the greatest challenges for this Czech-German border area come from:

- (i) the growing traffic volume and the poor state of the traffic infrastructure which is a relic of the Communist past when East-West traffic routes in railways and roads were neglected;
- (ii) the high degree of environmental pollution caused primarily by the mining industry and the structure of energy generation and consumption in the Saxon and west Bohemian parts of the Euregio Egrensis; it affects also the Bavarian locations near the border;
- (iii) the tremendous structural problems and the growing competition among the three border regions for investments, jobs and sales markets.

In the short period of time since the borders were opened, traffic between the regions has increased

¹⁴ The total population of west and north Bohemia, Saxony, Upper Frankonia and Upper Palatinate is 8.8 million (1990).

dramatically: in 1990 27 million cross-border travellers were registered at the crossing points on the border between Bavaria and the Czech Republic, which is an increase of 740% compared to the previous year. The figure continued to increase in 1991 to 58 million people, and is expected to go up still further.

The number of vehicles crossing the border has shown a steep increase since 1990: an estimated 12 million passenger cars and 0.6 million lorries crossed the Czech-Bavarian border in 1992, which equals a daily total of approximately 33 000 passenger cars and more than 1 600 lorries. This has led to massive congestions and delays in long-distance haulage of up to 30 hours.

To date there are seven border crossing points by road and three border crossing points by rail, the most important of which are located on the roads linking Nuremberg-Waidhaus-Prague and Schirnding-Cheb. Since May 1992 railway services have been improved with three regular trains running daily between Nuremberg and Prague via Schirnding-Cheb.

High priority will be given in the forthcoming years to improving the linking up of the motorways of the border regions and to opening additional crossing points. Several projects will be launched to cope with the traffic load in the Bavarian-Czech border area (see Bavarian Ministry of the Interior, 13.6.1991):

- (i) reopening of the railway crossing point at Bayerisch Eisenstein; resumption of railway service to Plzen; all-out electrification and extension of the railway lines from Nuremberg via Amberg and Cham to Prague; modernization of the section between Schirnding and Eger;
- (ii) installation of a new motorway crossing point at Waidhaus by 1997; extension of the German motorway network to Hof-Weiden and Nuremberg-Waidhaus-Prague; it is planned to finance the section between Rozvadov (Tachov district) and Rokycany (near Plzen) from German sources; improvement of the federal highways (border crossings at Schirnding and Waldsassen).

The regions of Saxony and west Bohemia have suffered considerable ecological damage from lignite and uranium mining. Aue (Saxony) is the largest uranium mining area of Europe where some 220 000 tonnes of uranium were produced

during the last 40 years. In the meantime the Wismut uranium company has been wound up, but the 3 500 stocks of uranium ore and several waste dumps of the processing plants and their radioactive and chemo-toxic substances represent a great hazard for the environment. It is impossible to assess as yet how much the clean-up will cost or how long it will take. Also northern Bohemia has been a centre of uranium mining and has suffered ecological damage as a consequence. Moreover, the degradation of the environment has been caused by technically obsolete power generating plants and lavish consumption of fossil fuels which has led to a high SO₂ emission in the Czech border regions. North Bohemia suffers the highest SO₂ emissions of the border region and of the Czech Republic as a whole both per km² and per head with 109.81 t/km² and 0.73 t/head (west Bohemia: 16.68 t/km² and 0.41 t/head). In contrast, SO₂ emission is comparably low in Upper Franconia with 2.76 t/km² and 0.02 t/head, but this area is affected by transborder pollution stemming from Bohemia as well as from Saxony (see above).

The reduction of environmental pollution is hence regarded as an extremely urgent task. A positive effect is expected to come from the restructuring of the energy industry in the Czech Republic: it is envisaged to reduce the share of coal in overall energy consumption by 60% on today's level by the year 2000. The costs of such a project are immense (about Kcs. 180.7 billion, approximately ECU 5 billion) and will require not only foreign loans (in July 1992 the World Bank appropriated ECU 184.5 million for the modernization of the coal power plant of Prunerov north-east of Karlovy Vary) but also cooperation with the regions across the border will be required. For this purpose the electricity supplier CEZ on the Czech side and the Bayernwerk on the German side concluded a cooperation agreement which has been effective since March 1990. They have planned to study the feasibility of a joint lignite-fuelled power station equipped with the most sophisticated flue-gas filters at Tisova in the lignite mining area of Sokolov in order to reduce the present level of noxious emissions. However, more far-reaching plans of the Bayernwerk to take over (and dismantle) the power station of Tisovo and thus to rehabilitate and recultivate the whole area were rejected by the Czech Government on the ground that the plant was still profitable despite a capacity reduction from 15 to 10 million tonnes of lignite per year.

Another example of cooperation is the so-called 'energy bridge to the East' (a link between the

power supply system of Upper Palatinate and the Czech network) which should also help to reduce pollution. This facility, planned to go into operation in February 1993, will permit mutually the exchange of up to 600 megawatts of electric current. The costs including a power line of 162 km are assessed at about ECU 150 million, two-thirds of which is borne by the Bayernwerk. The objective of the project is not permanent exports of power but rather exchange of power in times of poor weather (smog) or during the period of modernization, when the environmentally harmful coal power plants in the Czech border region are fitted with modern flue-gas cleansing devices.

Another joint energy project is the extension of the oil pipeline Trieste-Ingolstadt via Waidhaus to Uhý near Kralupy (about 320 km in length). This pipeline is planned to eventually transport 27 millions tonnes of oil. At the moment the project is being halted though because several German water utility boards have objected. It is therefore not yet certain where exactly the pipeline will run.

Also the region of Upper Frankonia has its contacts in the field of energy with the Czech partners across the border. The power supply industry of Upper Frankonia (EVO) not only supplied the desulphurization plant for the power station of

Tivoso but also concluded a cooperation agreement with the power supply company of north Bohemia (SCE) to make the power supply there safer, more efficient and more benign to the environment.

Apart from their traffic/transport and ecological problems the border regions of Saxony, Bavaria and the Czech Republic are all faced with serious structural problems which are reflected in the growing competition amongst them for investments, jobs and sales markets.

The Bavarian part of the Euregio Egreensis is a rather sparsely populated area with a distinct orientation towards agriculture and forestry (see Table 7). The regions of eastern Upper Frankonia and northern Upper Palatinate are for the most part 5b regions, whose characteristic features are a below-average economic strength compared to the German average, a large proportion of agricultural employment, a below-average level of incomes and a large number of emigrants and commuters.

In the areas of the Upper Palatinate on the slopes of the hills, which had formerly been dominated by farming, tourism is becoming an ever more important branch of economic activity. To date they

Table 7: Demographic and economic profile, 1991

	Population density 1991	Migration pressure index * 1991	Agriculture	Share in total workforce 1991		
				Manufacturing	Construction	Private services
North Bohemia	150.09	38.43	5.03	31.17	3.73	12.35
West Bohemia	79.11	36.58	8.87	26.02	3.75	12.42
Saxony	259.79	32.22	1.74	5.76	1.19	7.27
Upper Palatinate	102.30	27.41	0.58	21.53	5.03	17.49
Upper Frankonia	146.00	24.73	0.41	28.16	4.04	18.30

* Migration pressure index: ratio of 0-14 years old to (15-64 and 65+ years old), the figures in brackets being weighted by 0.5.

Source: Empirica Regional Monitor.

Table 8: Wage/price differentials, June/July 1992

	Textile workers (f) net monthly earnings	Rents monthly average	Bread 1 kg	Meat 1 kg	Cheese 1 kg	Beer 0.5 l
Bohemia	67.75	18.97	0.22	3.25	2.06	0.16
Saxony	487.80	131.71	1.46	8.29	9.76	0.63
Bavaria	780.49	487.80	1.46	9.76	9.76	0.63

Source: Empirica Regional Monitor.

have a competitive edge in tourism as the tourist industry of both the Saxon and the north Bohemian border regions is still grossly underdeveloped (Maier 1992). A competitive disadvantage for the Bavarian regions, on the other hand, lies in the great wage differential *vis-à-vis* the Bohemian border region (see Table 8). A strike by Bavarian granite workers in 1991 spotlighted the fears of competition from the low-wage Czech Republic.

But on the German side, too, there are some which have benefited from the opening of the border, small-sized handicraft and building enterprises in particular which have been able to raise their exports of goods and services into the neighbouring border regions (Bavarian exports into the Czech Republic rose in 1991 by an estimated 67% against the previous year, imports by 59%) or to reduce their costs through outsourcing.

The Saxon border regions have had to undergo tremendous restructuring since the unification of Germany. In 1987 the textile and clothing industry employed about 33 000 people, i.e. more than 40% of the total labour force of manufacturing industry. A large number of enterprises have been privatized in the meantime. Some estimates, however, say that the number of employed will drop another 70-80%. Also other industries of local importance such as musical instrument manufacturing and mechanical engineering are hit by decline, solely the building trade is recording a positive trend.

The Czech border region is among the constituent parts of the Euregio Egrensis with the highest proportion of industrial activity (especially in the locations of Karlovy Vary and Fokslov) in the field of both light and heavy industry. West Bohemia benefits to a certain extent from the economic and structural weaknesses of the German border regions. It is true that its economy is also undergoing structural change but it seems that its industrial locations are particularly interesting to resettling manufacturing industries because of the low local labour costs. The growing investment activities of foreign companies are also an indication of the attractiveness of the west Bohemian locations. A US chemicals corporation for instance has invested ECU 20 million in Fokslov and there are plans for further investments in the order of ECU 132.2 million over the next seven years. Growing investments and outsourcing have even led to scarcity of labour in some industries.

Besides joint ventures and cooperation agreements between individual companies in the indus-

trial and service sectors, there are plans to set up an industrial park in the border region of Bor, situated about 20 km from the border crossing point of Waidhaus and easily accessible once the planned motorway exit of Bor and the planned motorway Nuremberg-Plzen is completed. There are also plans for a 82 000 ha supra-regional nature conservation park, which promises to have positive effects on tourism in the entire area.

The border area between Albania, former Yugoslavian Republic of Macedonia, Bulgaria and Greece

Despite the geographical proximity to its East European neighbours and their importance as transit countries and despite ethnic links — an estimated 250 000 ethnic Greeks still live in the Balkan countries, most of them in Albania and in the former Yugoslavian Republic of Macedonia — Greece's relations with the regions across the border to Albania, the former Yugoslavian Republic of Macedonia and Bulgaria have been very limited.

This has to do, for one, with the topographical conditions, as the mountain ranges permit only relatively few corridors. Secondly, it is a result of the former sealing-off policy of Albania and also

Greece had been in conflict with Albania over the Greek minority in Albania who were discriminated against as regards their legal and economic status. While the relations between the two countries have improved since 1985 after the Albanian Government had made some legal and economic concessions in favour of the Greek minority, they have come under new strain as a result of the massive influx of Albanians (of Greek and other origin) into Greece estimated at 200 000 to 300 000. While the mostly illegal immigrants have partly been welcome as cheap labour (the average monthly wage of an Albanian worker is about ECU 28), they have caused considerable social and economic problems in the mostly affected regions (north-western border regions of Greece and Thessaloniki).

The bilateral relations between Greece and the former Yugoslavian Republic of Macedonia have been strained for historical reasons which has been manifest in the recent dispute about the naming of this new State; these tensions have thwarted any attempts to develop an economic axis between Skopje and Thessaloniki. Nevertheless, Greece's relations with former Yugoslavia have always been much more intensive than with its other neighbours because former Yugoslavia was more liberal and 'open' compared to other Eastern European countries and very important for Greece as a transit route to Western Europe.

Bulgaria *vis-à-vis* Western Europe. Thirdly, the relations between the border regions have been hindered by the historically based irritations between Greece and the former Yugoslavian Republic of Macedonia.

The border regions of Albania, the former Yugoslavian Republic of Macedonia, Bulgaria and Greece differ widely in terms of demographic profile, economic structure and standard of living, though most of them are relatively backward and agriculturally predominated as Tables 9 and 10 show.

Relations between Greece and Bulgaria were very poorly developed in the past but have intensified since the reform process began. For instance the number of Bulgarian tourists to Greece has risen two-fold from approximately 74 000 tourists in 1989 to 158 000 in 1991. Greek exports to Bulgaria — especially in manufactured products — have increased after an initial fall in 1990 (– 23%) by 66% in 1991 and 54% (January-June 1992), imports from Bulgaria have risen by 87% between 1989 and 1991, but slightly dropped in the first half of 1992 (– 5%) (see Table 11).

Table 9: Demographic and economic profile, 1990

	Population density	Migration pressure index *	Agriculture	Share in total workforce 1990			Private services
	1990	1990		Manufacturing	Construction		
Albania	117.85	68.43	33.80	17.07	4.79	10.78	
Former Yugoslavian					–		
Republic of Macedonia	82.88	–	–	–	–	–	
East Macedonia	40.00	27.06	26.86	9.15	2.74	10.55	
Central Macedonia	87.20	23.81	15.38	12.45	3.01	12.58	
West Macedonia	27.40	29.12	17.49	10.23	3.51	9.09	
Epirus	33.60	22.13	22.22	6.18	5.03	11.72	
Haskovo	76.07	41.99	15.70	28.90	5.09	10.17	
Plovdiv	94.52	38.56	12.32	31.55	5.07	10.92	
Sofia region	53.27	37.19	17.06	37.53	5.22	11.21	

* Migration pressure index: ratio of 0-14 years old to (15-64 and 65+ years old), the figures in brackets being weighted by 0.5.

Source: Empirica Regional Monitor.

Table 10: Standard of living, 1990

	Cars per 100 inhabitants	Hospital beds per 100 inhabitants
	1990	1990
Albania	0.10	–
Former Yugoslavian		
Republic of Macedonia	10.83	–
East Macedonia	11.13	0.00
Central Macedonia	12.28	5.93
West Macedonia	–	–
Epirus	11.00	4.85
Haskovo	3.05	0.97
Plovdiv	3.35	0.91
Sofia region	3.38	0.91

Source: Empirica Regional Monitor.

Table 11: Trade and tourist flows between Greece and its northern neighbours, 1989-92

(annual percentage change)

	Bulgaria			Former Yugoslavia			Albania					
	1989	1990	1991	1992*	1989	1990	1991	1992*	1989	1990	1991	1992*
Exports to	103	– 23	66	54	78	64	– 11	– 24	279	– 5	– 31	116
Imports from	47	57	19	– 5	59	20	– 18	– 45	85	64	– 3	0
Tourists from	56	82	18	– 14	– 7	57	– 11	– 83	–	–	–	–

* I-IV 1992.

Source: Walldén 1992.

The volume of traffic has greatly increased on the axis Thessaloniki-Promachonas/Kulata-Sofia-Vidin (Bulgaria) which has become the most important transit route for Greek long-distance freight transport to Central and Western Europe since the Yugoslav crisis and the EC trade embargo (apart from the route via Italy).

The route via Bulgaria has several drawbacks though. Apart from the poor condition of the roads, which hampers the cross-border freight traffic between the two countries and transit traffic alike, there are considerable time and cost disadvantages compared to the former transit route through former Yugoslavia. The route to Budapest via Sofia is much longer and entry visa and toll charges are higher, which means a great competitive disadvantage for the Greek transports. According to a calculation made by the Association of Truck Owners of Northern Greece the cost per journey (to and from) were up by about ECU 270 even for the shorter route via Sofia-Nis-Beograd, which is some 200 km longer than the former transit route via Skopje which is no longer passable, and this amount does not include the extra cost for the drivers' wages, petrol and service (KEPE 1992).

Communication across the borders is greatly obstructed by the limited number of crossing points for both rail and road traffic. To date Greece's access to Bulgaria is restricted to two crossing points, to three to the former Yugoslavian Republic of Macedonia and to two to Albania. Especially in the light of Bulgaria's new importance as a transit route for Greece the opening of new border crossings and the construction of the respective road links is a task of high priority. It is planned to open two or three more into Bulgaria and one more into Albania.

After Albania had opened its borders to Greece it became obvious that to improve the cross-border relations a good deal of modernization and improvement of the road links would be necessary. First of all the main road link between Ioannina and Kakavia (major Greek border town) needed improving. This Greek-Albanian route is expected to contribute substantially to increasing commercial transactions not only between Albania and Epirus but also Greece as a whole. The prospects of Albania becoming integrated into the north-south trans-European road transport scheme (TEM) are viewed with much interest. In that event there may be an opportunity to speed up the construction of the road from Ioannina to Dyrrachio. The improvement of this traffic route will facilitate, among other things, the installation of two regular bus lines, Ioannina-Argirokastro and Athens-Ioanni-

na-Argirokastro-Tirana, which were agreed upon early in 1991 by the joint Greek-Albanian Transport Committee. The installation of these two lines and the conclusion of other bilateral agreements are indications that efforts are being made to improve the economic and political cooperation between the two countries.

Another field where infrastructural improvement is required is sea shipping. The ports of Thessaloniki, Kavala and Alexandroupolis in northern Greece are very important for Bulgaria's and Romania's shipments to Western Europe. At present some 15% of the turnover of the port of Thessaloniki is accounted for by Bulgarian and Romanian shipments. A major field for cross-border cooperation therefore lies in projects to improve the transport infrastructure linking up to the harbours on the Greek Sea. Before the conflict in former Yugoslavia the port of Thessaloniki was at the same time the most important harbour for the former Yugoslavian Republic of Macedonia which it could become again, provided that the two countries improve their relations.

Transport infrastructure is not the only field in which close cooperation among border regions is required in order to cope with the big investment and modernization need. Other areas such as environmental protection, water management and energy require cross-border cooperation, too, because of their transboundary ramifications.

Starting with the question of water: the water resources in the border regions across Greece's borders and especially the water of the rivers which originate in the neighbouring countries are badly managed and there is a general state of abeyance as no bilateral or multilateral agreements have been concluded on, say, restrictions of land use, or of use of river waters for irrigation and power generation.

There are also plans to use the rivers for electricity generation — projects of particular interest to the Balkan countries, since they all have considerable problems with energy supply. Greece, too, has a great interest in cooperation with its neighbours in the energy field since its northern regions have for some time been supplied with electricity from across the border during peak consumption times. In times of great demand Greece still buys power from Albania and Bulgaria although both countries suffer energy shortages themselves. A conceivable solution could be hydroelectric power stations, for example on the Nestos river or on the Aous river, which flows from Greece into Albania;

however, no concrete project plans have as yet been worked out.

The problem of water supply and use arises for the Greek regions especially in connection with the rivers which run from Bulgaria and former Yugoslavia into the Greek Sea. A large part of Thessaloniki's plains, for example, depends heavily on the water from the Axios river, which rises in former Yugoslavia. The same holds true for a large part of the cultivated areas in the north-eastern border regions of Greece (eastern Macedonia and Thrace) which are dependent on water supplies from the Strymon and Nestos rivers (both having their sources in Bulgaria) and cultivation in the Evros plains depends on the water resources of the Adras river (rising in Bulgaria) and of the Evros river which is shared with Bulgaria and Turkey. The problem has recently been getting more acute because of the growing shortage of water throughout the northern regions of Greece.

Apart from the problem of quantity of available water, the quality of the water has become a matter of concern considering the considerable pollution in the various countries. (In Albania, former Yugoslavia and Bulgaria a large part of the waste water is discharged untreated into the rivers.) Efficient water management, reasonable patterns of use of water resources and appropriate instruments guaranteeing high water quality have become imperative requiring close cooperation between Greece and its Balkan neighbours.

Also transborder air pollution poses a big problem for the neighbouring regions and necessitates closer collaboration across the frontiers. Although the Balkan countries in general have a lower level of air pollution than the other East European countries, certain regions are up against serious pollution problems, i.e. Sofia, Burgas, Dimitrovgrad, Devnya, Kardzinali and Pirdop (Bulgaria) and Bor, Trepca and Zenica (former Yugoslavia). The strong winds, frequent in the area, carry the pollutants over the borders into the neighbouring countries where they cause environmental damage.

Cooperation in the economic field between private enterprises is still restricted to relatively few instances. Companies in the border area have hardly an opportunity of cooperating with partners across the border. However, the Bulgarians seem to be quite interested in intensifying contacts. The city of Thessaloniki could play a key role, since the major infrastructural links to the neighbouring countries start here. It is also thought capable of giving the best impetus to economic development

in the Bulgarian border region. Thus in Blagoevgrad (south-western Bulgaria) a Greek-Bulgarian information centre is planned to promote cooperation with Thessaloniki.

At the same time there is a growing Greek interest in direct investments in Bulgaria. Their volume is very small though with the exception of a few major joint ventures in oil products and food industry (ice-cream, beverages).

On the other hand it is not unlikely that competition will emerge between the border regions of Greece and those of Bulgaria — assuming that Bulgaria's economic development makes steady progress — since both have similar export structures especially with regard to labour-intensive production lines.

Albania, in contrast, is unlikely to be a serious competitor in common sales markets in the next few years. Since the border opening, the cross-border trade — often semi-legal — in the immediate border zones (south-east Albania and Epirus/western Macedonia) has greatly expanded, but considering the enormous economic problems and the low standard of living of Albania it is highly unlikely that this country should become a significant competitor for Greek producers.

Tourism might become a field of real competition among the three neighbouring countries. Bulgaria and Albania are thought to have promising chances in tourism thanks to their natural endowments, though one should not overlook that tourist infrastructure is virtually non-existent in Albania and mostly not up to Western standard in Bulgaria. But foreign companies have already shown a keen interest in investing in Bulgaria's tourist business which will make it more attractive also to Western tourists in the coming years. This may result in stronger competition among the affected regions of Bulgaria and Greece (along the coast or in the mountainous areas).

The Slovenian-Italian border area

The border area encompasses the Italian administrative units of Puglia and Friuli-Venezia Giulia and Slovenia, comprising 47 452 km² in extent and 7.2 million inhabitants. Tables 12 and 13 show the most important socioeconomic indicators as well as common and diverging features of Slovenia and the Italian border regions.

They show that manufacturing employment as a percentage of total employment is much higher in

Slovenia than in the Italian border regions (24.46% as against 8.04% in Puglia and 14.04% in Friuli-Venezia Giulia). The major fields of manufacturing in Slovenia are steel and electrical engineering, vehicle construction, textiles and clothing and food.

Agriculture in Slovenia is of relatively little importance with a share of 1.47% in total employment.

Employment in services in Slovenia with a share of 17.03% in total employment while markedly below the respective share in the Italian border regions is very high compared to other countries of Central and Eastern Europe (Czech Republic and Hungary: about 13%, Slovakia: about 12%, Poland: about 10%).

Another salient feature is Slovenia's low population density (96.42 inhabitants/km²) compared to Puglia (210.30 inhabitants/km²) and Friuli-Venezia Giulia (153.3 inhabitants/km²), which is higher though than the average of the former Yugoslavia (some 87 inhabitants/km²).

Relations have long existed between the so-called 'autonomous regions' and Slovenia, since former Yugoslavia was oriented towards the West to a far greater extent than other East European countries. Now that Slovenia is an autonomous State new opportunities for cooperation have emerged, primarily in the field of telecommunications, transport infrastructure, energy, trade and further education. Plans which are at present under consideration include, for example, the electrification and modernization of the railway network in Slovenia and the construction of a motorway link from Ljubliana to the Trieste motorway. However, as yet these plans have not taken shape and the financial aspect is still completely open.

Although Slovenia is among the most developed countries in Central and Eastern Europe (relatively diversified economic sector, relatively high-skilled workforce, highly developed agrobusiness and tourism industry) and although it has attracted some amount of investment from Italy (ECU 80 million which is 15.6% of the volume of foreign investment and 31% of all foreign enterprises/joint

Table 12: Demographic and economic profile, 1990

	Population density	Migration pressure index *	Agriculture	Share in total workforce 1990		Private services
	1990	1990		Manufacturing	Construction	
Friuli-Venezia						
Giulia	153.30	22.31	4.48	14.04	4.13	26.97
Puglia	210.30	40.26	2.90	8.04	3.54	21.04
Slovenia	96.42	33.32	1.47	24.46	3.70	17.03

* Migration pressure index: ratio of 0-14 years old to (15-64 and 65+ years old), the figures in brackets being weighted by 0.5.

Source: Empirica Regional Monitor.

Table 13: Standard of living, 1990

	Cars per 100 inhabitants 1990	Hospital beds per 100 inhabitants 1990
Friuli-Venezia		
Giulia	43.89	10.89
Puglia	11.00	4.85
Slovenia	29.41	0.61

Source: Empirica Regional Monitor.

Table 14: Wage/price differentials, June/July 1992

	<i>(in ECU per unit)</i>					
	Textile workers (f) net monthly earnings	Rents monthly average	Bread 1 kg	Fish 1 kg	Cheese 1 kg	Gasoline 1 l
Friuli-Venezia						
Giulia	646.10	387.66	2.20	10.34	8.40	0.95
Slovenia	195.12	126.83	0.63	3.90	5.85	0.54

Source: Empirica Regional Monitor.

ventures in Slovenia) (CICD 1992) — economic cooperation across the border is still limited by Slovenia's serious problems: while the political, economic and social reorientation has made some progress, the privatization process is proceeding only slowly and many ownership issues are still in abeyance (CICD 1992), infrastructural and energy provision is still inadequate.

At the same time where closer relations have developed they have given rise to some concern. The wide price and wage gap (see Table 14) is leading to growing competition in the textile industry (loss of jobs on the Italian side due to relocation of production into Slovenia) and to a growing 'shopping tourism' (petrol prices in Slovenia are published daily).

There are also negotiations going on concerning the relocation of entire production plants (e.g. the relocation of a major foundry from the Udine region).

This is creating additional difficulties for the 'autonomous regions', on top of their immense structural problems, high unemployment and increasing immigration (Autonoma Regione, Compendio Statistico 1991).

Competition has also developed between the ports on the Adriatic coast, with the competitive ports of Italy reducing the development opportunities for Slovenia's port of Koper as well as between the tourist locations.

2.8. Summary: regional development obstacles and potentials

With regard to the existing development obstacles and potentials in Central and Eastern Europe there are serious differences not only at the national level but also at the regional level. Numerous crisis regions, where structural weaknesses, environmental problems, ethnic tensions and inadequate infrastructural links greatly handicap a process of alignment and catching up with the West, exist alongside the relatively prospering regions, where locational advantages provide considerably better development opportunities.

Often several unfavourable factors coincide in the agrarian-structured problem regions, preventing economic development: unfavourable geographical position, insufficient links to infrastructure networks, poor social and medical provision, few

employment alternatives and general economic weakness. Yet, not all rural regions are necessarily problem regions. The relatively advanced countries possess a comparatively efficient food, beverages and tobacco industry, or at least one which could be modernized relatively quickly — a factor which is also of great interest to foreign investors. Moreover, some rural regions also constitute promising locations for future recreational facilities or tourism destinations. Thus in southern Bulgaria and Romania, and also in southern Slovakia, the tourist sector is prospering and could provide future employment alternatives for workers previously employed in the agricultural sector.

The monostructural industrial regions are also often marked by several obstacles to development. Besides serious structural problems they have to cope with a very high level of environmental pollution. This is particularly severe in the lignite mining areas and in the centres of iron and steel industries. Yet not all industrial areas are affected to the same extent by the structural crisis: some areas are already showing clearly positive trends. This is particularly true of some industrial areas in the Czech Republic and parts of north-western Hungary which have better growth potentials thanks to their relative locational advantages (position on traffic axes, relatively good starting position in terms of infrastructure and energy supply, existing or rapidly developing efficient private service sector, etc.). The commitment of foreign enterprises in these regions is having a particularly favourable impact.

The restructuring or adjustment process is proceeding most rapidly in the financial and service sectors in some regions which assume a bridging function between East and West. However, the growing spatial discrepancies in Central and Eastern Europe also engender immense problems for these so-called prospering regions: the immigration pressure exerted by migrants from poorer countries and regions is increasing, the housing situation is deteriorating and there are tightening bottlenecks in the waste disposal and in transport sectors. However, since a large part of public investment is flowing into these prospering regions, they will be in a better position to overcome existing development obstacles than the problem regions.

On the whole it is obvious that there is a great need in all countries of Central and Eastern Europe to catch up with their Western neighbours as regards infrastructural provision. The removal of supply bottlenecks is important not only in

order to raise standards of living and to minimize the potential for social conflict, but also because prospective investors regard infrastructural conditions as the decisive factor when it comes to assessing the attractiveness of locations in Central and Eastern Europe.

The Central and East European border and transit regions which flank the Community territory are thus in a special position: on the one hand, they benefit from the geographical proximity to their Western neighbours, on the other hand, they are particularly affected by increasing traffic flows since the opening of the borders and under greater pressure to adjust due to the more immediate competition. Although the current opportunities for cooperation are still relatively poor due to the economic, social and political problems, some border regions, in particular those along the German-Polish border and the German-Czech border, and some areas of south-western Bulgaria bordering on Greece have relatively good development opportunities.



3. Regional impact on the Community territory in the short term

3.1. Current degree of interpenetration between Eastern and Western Europe

With the opening up of the borders and the political and economic reorientation of the Central and East European countries, relations with the Community territory have grown significantly. Trade volume between the EC and Central and Eastern Europe increased by 43% between 1989 and 1991.¹⁵ During the same period, ECU 7.3 billion were invested in Central and Eastern Europe — though still very low it is more than in the previous 15 years put together. Cross-border travel activity has also risen tremendously, increasing, for instance, in Hungary which was one of the most liberal countries even in the days of the Iron Curtain, from 9.7 million (1987) to 14.3 million people (1991).

Relations between the EC and the countries of Central and Eastern Europe appear to have remained at a relatively low level, however, when one considers, for example, that the volume of trade between the EC and CEECs only amounted to 15% of EC-EFTA trade in 1991. At the present time, Central and Eastern Europe still represent a relatively unimportant partner to the Community (1991 only 1.6% of total EC exports went to and only 1.3% of total imports came from these countries) (Eurostat 8/9 1992).

Moreover, current relations between Central and Eastern Europe and the Community territory must also be characterized as relatively 'immature'.

Trade and investment flows predominantly run between only a few countries (especially the relatively advanced countries of Hungary, Poland, the Czech Republic and Slovakia on the one side and the Federal Republic of Germany, France, Italy and Great Britain on the other). Economic relations in the areas of trade and investment are also restricted to a few sectors: mechanical engineering, chemicals, electrotechnical engineering, food, textiles and motor vehicles account for more than 60% of all exports to Central and Eastern Europe, and fuels and minerals, iron and steel, textiles, food and agricultural products and chemicals make up over 60% of all imports in terms of value (see Annex, Figure 6).

In the area of investment, the lion's share is accounted for by the sectors of chemicals, textiles, mechanical engineering and food industry (Hungary, Poland, the Czech Republic and Slovakia) and by energy production and the extraction of raw materials (CIS) (NERA 1992, Ifo survey 1992).

The 'immaturity' of relations, ultimately attributable to the huge difference in standards of living and levels of development, manifests itself in the one-way transfer of capital (together with technology and know-how) from the West and the significant migratory flow of people into the Community territory from the East (empirica 1992c).

Relations have also only reached the incipient stage of development in the areas of infrastructure, environmental protection and cross-border cooperation (see Chapter 2).

Since 1989 relations between the Community and the countries of Central and Eastern Europe have become more intensive compared to the past,

¹⁵ Bulgaria, the former Czech Republic, Slovakia, Poland, Hungary and Romania.

and there have been some significant spatial effects on the Community territory as a result of increasing migration, increasing transit and traffic flows and of environmental developments.

The following figure summarizes the opportunities and risks ensuing from the opening up of the borders which have or will have spatial effects on the Community territory.

As a result of the heterogeneity of the Community territory, the opportunities and risks facing different locations vary greatly. The crucial determinants here are a region's degree of involvement/interpenetration with Central and Eastern Europe, and its response potential.

A high degree of interpenetration means that the potential effects on a region will be greater, whereby the determinants of the degree of interpenetration admit both options, i.e. both opportunities and risks. Whether there are more opportunities than risks depends upon the condition and capability of a region. If it possesses the ability to react flexibly to changed terms of competition, i.e. if it has a large response potential, it may become a potential winner during the growing together of East and West. If, on the other hand, the response potential is weak, there is a danger that the region will not be able to take advantage of its growth potentials and that it will lose out in the increasing competition.

The central issues which need to be answered with respect to the possible effects on the Community territory are therefore:

Which areas of the Community should expect the greatest short-term impact?

Which regions could have growth potentials?

Which parts of the Community, on the other hand, will most likely be subjected to adjustment pressure?

Which areas of the Community will scarcely be affected in the short term?

With the aid of a so-called 'short-term likely-impact model' an attempt will be made to measure the potential short-term effects on EC regions at NUTS level 2, and to devise certain sensitivity types. The structure and methodology used in the model will be explained and the results of the model will be presented with the aid of maps.

3.2. Short-term likely-impact model — Methodology and selection of parameters

As mentioned above the possible impact on a Community region depends on the degree of its interpenetration with the countries of Central and Eastern Europe and its response potential. The actual degree of interpenetration between regions in East and West is scarcely 'quantifiable', however. This would require precise data on regional input-output relationships or statistics on actual flows of goods, investment and people at the regional level, which are not available. However, the possible degree of interpenetration or the interpenetration potential of a region can be determined with the aid of the economic sensitivity and accessibility potential determinants.

Economic sensitivity

As shown in Chapter 3.1, there are a few key sectors, both in the field of reciprocal trade and investments. Other sectors, by contrast, are of scarcely any importance in the current economic relations between the EC and Eastern Europe.¹⁶ For this reason, those regions in which the key sectors prevail will become more involved in the

¹⁶ Sectors which are not very significant at the moment but might gain importance in the medium term (e.g. paper products) are dealt with in Chapter 5.1.

Figure 15: Opportunities and risks ensuing from the opening of the borders in the short term

Opportunities	Risks
Opening up new markets Using comparative advantage Transnational cooperation	Intensification of competition Adjustment pressure on sensitive sectors Increasing competition for border locations
	Increasing transport and traffic flows Changes in environmental conditions Future migratory movements

Source: Empirica.

process. Regions which, on the other hand, have few relations with Central and Eastern Europe as a result of their economic structure will not be affected strongly, either positively or negatively.

Accessibility potential

The second important determinant of the interpenetration potential of a region is its accessibility potential. Locational advantages or disadvantages of a region compared to others are normally measured in terms of travel times or distances from an originating region to a set of relevant destinations in other regions. A similar but inverse approach is to count the destinations or potentials which can be reached within given travel times or distances. The operational techniques of using these concepts to measure accessibility and peripherality of Community regions are discussed in a separate study (BfLR 1992).

In an attempt to measure the change of regional accessibility and economic potential during the first periods of successive enlargement of the EC, Keeble and others suggested a potential index based on earlier concepts of industrial locational analysis (Keeble *et al.* 1982). Locationally dependent economic potential is thus defined as the volume of economic activity a region has access to, while taking into account the cost of covering the distance to that activity.

This concept meets both angles of accessibility: that of producers wishing to gain access to market potentials as well as that of consumers needing to be supplied with goods and services. Regions with higher potential values (calculated as a ratio between accessible activities and distance) have access to more economic activity within a given distance than those with lower ones and could in this respect be considered to have a comparative advantage for economic development.

The most common mathematical formula of the potential concept is:

Formula of the potential concept

$$P_i = \sum_{j=1}^n \frac{M_j}{D_{ij}} + M_i$$

where

- P_i = Potential of region 'i' (*base region*)
- M_j = Measure of volume of economic activity in region 'j' (*destination region*)
- M_i = Ditto for *originating region* 'i'
- D_{ij} = Measure of distance or cost of transport between 'i' and 'j'
- n = Number of regions

Since this formula establishes a non-linear relation between potential and distance, the benefit of accessible activities is decreasing progressively with increasing travel or transportation costs.

Frequently exponents are used to fit distance measurement to certain empirically based relations between benefit of accessible activities and distance. Maps 4 and 5 (Chapter 1) have shown how much the accessibility potential varies among the different parts of the EC and Central and Eastern Europe.

Response potential

As stated above, the type of effect — whether a region will be positively or negatively affected — depends on its ability to react flexibly to changed competitive conditions. The interpenetration potential (economic sensitivity and accessibility potential) alone does not tell us whether adjustment pressure or growth impetus is more likely to be triggered. Only after adding the determinant response potential can conclusions as to the likely impact on a region be drawn.

In this study, the response potential is measured in terms of indicators of regional competitiveness (see Chapter 3.3 below).

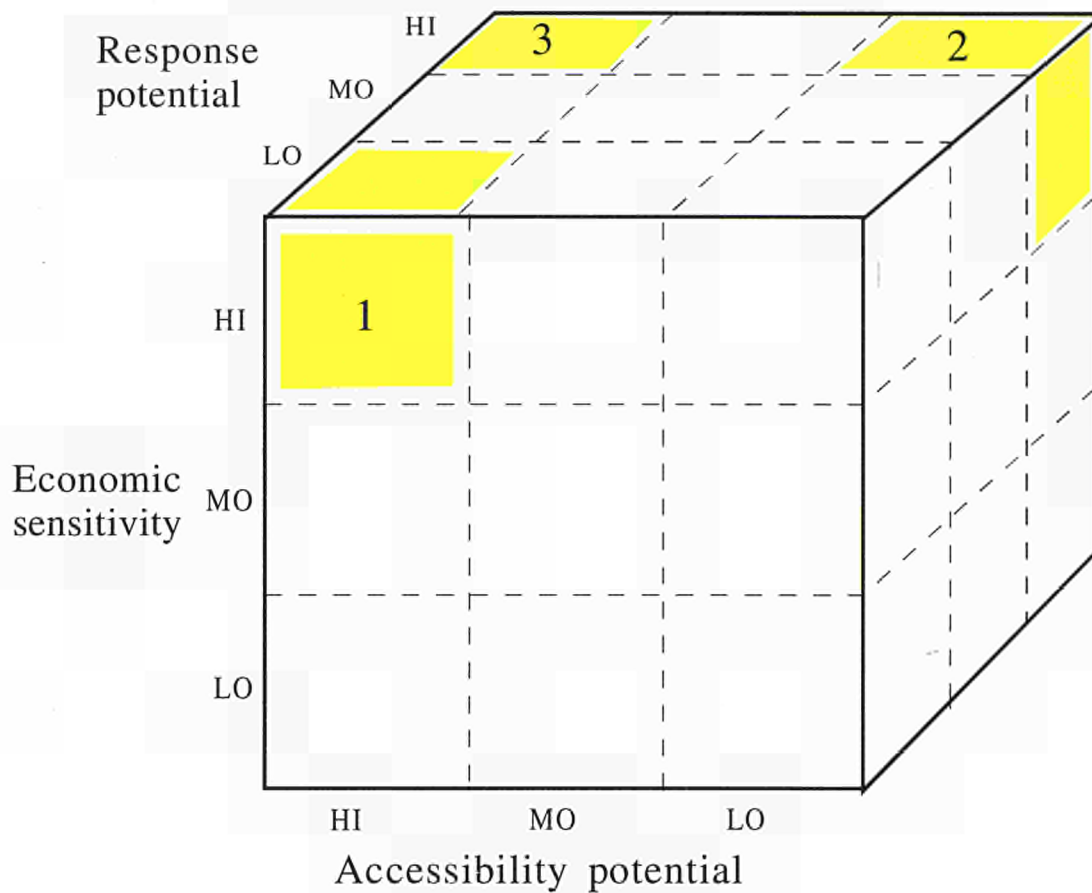
These three determinants are interrelated and can be represented with the aid of a three-dimensional grid (see Figure 16).

If the Community regions are analysed in terms of these three determinants and grouped according to their significance — 'high/moderate/low' — this produces a total of 27 squares to which the regions can be allocated.

3.3. Operationalization of the model

Analysing the regions in a single-step process, i.e. taking all three determinants into account at the same time, is theoretically possible, but presents disadvantages: for one thing, the resulting model is too complex and hence confusing; for another, information is lost if many indicators are densely aggregated, thus rendering a detailed evaluation of the spatial effects more difficult. A multi-step procedure according to the model laid out in Figure 17 would appear to be more expedient.

Figure 16: Three-dimensional grid of spatial impact



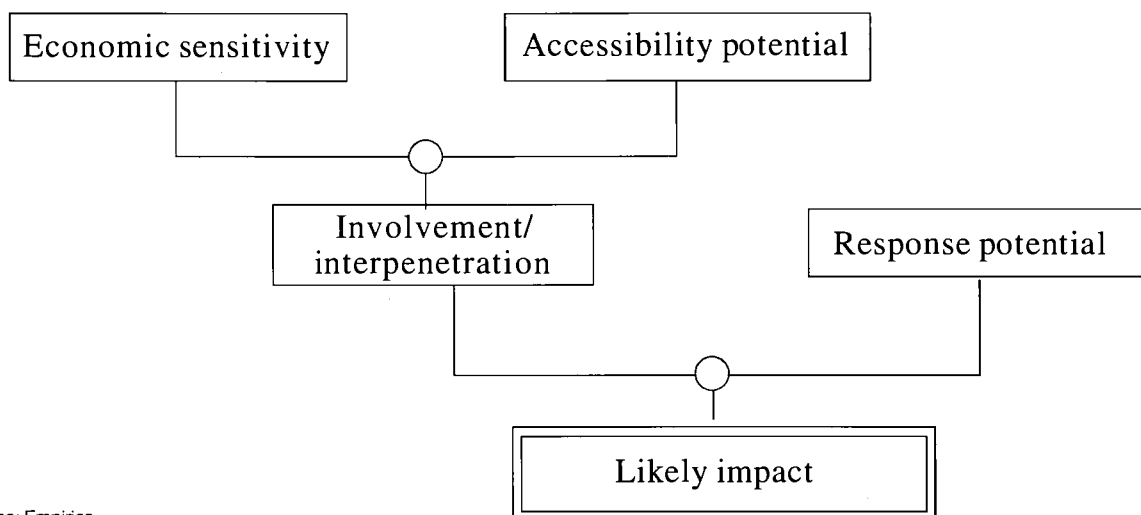
- 1: High economic sensitivity/high accessibility potential/
low response potential (= negative impact)
- 2: High economic sensitivity/low accessibility potential/
high response potential
- 3: High economic sensitivity/high accessibility potential/
high response potential (= positive impact)

Source: Empirica.

Figure 17: Steps of the likely-impact model

Assumptions: Spatial impact depends on:
 Involvement/interpenetration } of a region
 Response potential }

Model:



Source: Empirica.

Below, the individual determinants of economic sensitivity, accessibility potential and response potential are assigned indicators and the results of the analysis for the Community territory at NUTS level 2 are presented with the aid of maps.¹⁷ In addition, the regions of the EC are classified in terms of specific sensitivity types with the aid of synthetic indices in the intermediate stage of the model — termed 'interpenetration' — and the final stage: 'likely impact'.

Economic sensitivity

With respect to possible short-term effects, industrial sectors were selected which, according to the business surveys by the Ifo-Institute, were identified as the most affected branches.

Results of an expert survey: short-term sensitivity of industries¹⁸

Mechanical engineering

So far Western businesses have shown little interest in establishing a presence in Central and Eastern Europe, although many cooperative ventures are being started in the form of licensing agreements with the supplier companies. Competition from Eastern manufacturers of finished goods is also still relatively slight; imports of semi-finished products from Central and Eastern Europe have risen significantly, though. This means that over the short term the supply industry should be the most strongly affected sector. The most interesting locations for investment and cooperation at present are in Hungary, the Czech Republic, Slovakia, Poland, the Baltic States and Slovenia. Growing competition for Western enterprises, also in the area of finished goods, is to be expected from the Czech Republic and Slovakia, as the conditions for manufacturing competitive products appear most favourable there due to the availability of a highly skilled workforce and of production capacities.

¹⁷ In order to create a typology of EC regions, the values of the indicators used were standardized and indexed. In the process some information had to be dropped in order to be able to draw up a concise model of the spatial effects on the Community. The special situation of individual regions where qualitative factors also play a role will be examined separately with the aid of examples below. The relatively rough unit 'NUTS level 2' was selected because of the availability of data. It should be noted, however, that the model results within a NUTS 2 region can vary strongly between the different locations. This especially applies to countries which are divided into only a few NUTS 2 units.

¹⁸ Experts from important industrial and commercial associations which monitor the respective developments in the European market were interviewed by the Ifo Institute in July/August 1992. In addition, 120 enterprises were interviewed concerning their assessment of future developments in East and West.

Extraction/preliminary processing of metals

Western companies have already made a strong commitment in Central and Eastern Europe; they are especially interested in taking advantage of wage-cost-intensive products (semi-finished and finished goods). As a result of cooperative ventures and outsourcing, import pressure in the metal-casting industry is increasing, especially with respect to mass-produced goods which are easy to manufacture. However, the know-how needed to produce high-grade metal products is lacking. The transfer of individual production stages and further staff cuts in the West are expected as a result of activities in Central and Eastern Europe. Moreover, competitive pressure on supplier companies in the metal-working sector keeps increasing. The most interesting locations for planned investments are in Hungary, the Czech Republic, Slovakia and Poland as a result of the relatively stable conditions there, and of their geographical proximity to the EC.

Textiles

Business activities in Central and Eastern Europe are at present characterized by limited investment of capital and intensive cooperative ventures. The greatest interest is in outsourcing in the East as a result of current cost advantages. Know-how and production capacities already exist to a large extent. While the competitive pressure on high-grade textiles and their production locations has been virtually negligible, it has been sharply increasing in the lower price categories. However, market shares will be gained also by Western sellers if the East European population's increasing standard of living gives rise to greater demand for high-quality textiles of modern design. The preferred locations for cooperative ventures in the textile industry are, besides Hungary, the Czech Republic, Slovakia, Poland and the Baltic States.

Clothing industry

West European enterprises have strongly committed themselves also in the clothing industry of Central and Eastern Europe. As in the textile industry, cooperative ventures are being preferred to direct investment. The cooperative ventures are producing primarily for the Western markets; only 5% of goods remain in Central and Eastern Europe. The import pressure will continue to increase, but supplier firms will be less affected, as raw materials must originate from EC countries lest the re-imported finished goods should be liable to customs duties. Moreover, the clothing industry places high demands on the quality and design of raw materials, and suppliers in Eastern Europe are presently not able to meet them. Potential areas for cooperative ventures are those mentioned in the above paragraph on textiles as well as Romania, Albania, Russia, the Ukraine, Slovenia and Croatia.

Food industry

There is already a strong commitment by the food industry in Central and Eastern Europe in the form of investments, although most of the production is destined for the markets there. Both lower wage costs and less stringent regulations are playing a role in investment decisions in the area of food production. Increasing competitive pressure is expected for suppliers of raw materials, in the canning industry for example, and here former Yugoslavia, in the past an important supplier, is largely being replaced by other East European producers. In the food industry as well, the focus of interest at present is on the relatively advanced countries of Hungary, Poland, the Czech Republic, Slovakia and to a certain extent on the Baltic States.

In addition those branches were selected which are of special importance in terms of export/import relations between Eastern Europe and the Community, such as the chemical and fibre industry and the mineral oil refining industry (see Chapter 3.1).

The findings of the survey by the Ifo Institute and of the observations made in Chapter 3.1 suggest that the following sectors are likely to be affected above average.

Industries sensitive in the short term

NACE	Industries
14	Mineral oil refining
22	Extraction/preliminary processing of metals
25+26	Chemical and fibre industry
32	Mechanical engineering
43	Textile industry
45	Footwear and clothing industry

Source: Empirica.

At the same time, however, the term 'high sensitivity' for some sectors must be viewed in relative terms. The Community has maintained import restrictions and fixed them in the Association Treaties in the coal and steel sector, the textile industry and agrobusiness. This results in less competitive pressure on these sectors than would be the case if there was complete liberalization. The transitional regulations are to be effective for another five to six years, depending upon the particular economic sector.

It nevertheless seems sensible to view these sectors as 'highly sensitive' in the model, as the developments in Central and Eastern Europe are also having an impact on current political decisions (reform of the agricultural market regime, a reduction of subsidies, the closure of steelworks

and textile enterprises in the new German *Länder*, etc.). The adjustment pressure in the area of trade has thus already increased significantly in spite of the 'grace period'.

The following variables were used as an indicator of the importance of the two economic groups at the regional level (NUTS 2): the number of employees in the various sectors of the group of 'industries which are sensitive in the short term' (1988 and 1990 respectively) and the group 'agriculture and the food industry'.¹⁹

Maps 17 and 18

These maps show to what extent the labour force is affected by the sector specialization in a region within the EC.

The regions which are affected most by short-term effects on industries are those which concentrate on the traditional industrial sectors, including heavy industry, mechanical engineering and the chemical industry. The most sensitive regions include the new German *Länder*, southern Germany as well as areas around Porto, Bordeaux and Milan and northern England.

This is also confirmed by business surveys (see Ifo survey 1992). The greatest competitive pressure on the textile industry is expected in the new German *Länder*, but also in locations in western Germany, France and Italy. With respect to the clothing industry, production locations in Greece and Portugal are also expected to experience an economic impact. In the metalworking industry, traditional industrial locations in the Federal Republic of Germany, but also in France, Greece and Italy could be the most significantly affected.

Spatial sensitivity in terms of the importance of the agricultural and food sector in the various regions produces a very different picture. Peripheral rural areas, where up to 30% of the people are employed by the agricultural and food sector, are affected most. Two belts of high spatial sensitivity become apparent: the areas situated on the west-

¹⁹ It would be more precise to 'measure' the export orientation of a region in the sectors to be viewed, as this indicator is more likely to reflect the actual degree of interpenetration at the international level. However, analyses that have been carried out, show that a quantification of this variable at the regional level is plagued with uncertainty and problems of evaluation, thus calling into question the meaningfulness of any conclusions. The indicator 'share of the respective industries or industry group in the regional product', which indicates the actual economic importance of these industries or industry group to a region more than 'employment share' does, was discarded because of evaluation problems. With respect to the 'level of employment' indicator, however, it should be taken into consideration that differences in productivity between the regions have not been measured. This is especially important with regard to the 'agriculture and food industry' group, as it is precisely in agriculture that there are significant differences in productivity within the Community territory.

ern borders of the Community (Ireland, western France, Spain, Portugal) and the eastern parts of the Community (new German *Länder*, eastern coast of Italy and Greece).

Accessibility potential

To identify changes in locational advantages of EC regions as a result of the opening of Central and Eastern Europe, it is necessary to have a concept of measuring accessibility which is not only based on given sets of destinations or limited travel times (see above). A concept to be appropriate must permit to combine different travel times or distances with changing accessible economic potentials. This means that weightings are to be used which change as a function of the degree to which a region is open to the European Community.

Even if two locations have the same market potential (expressed in terms of the accessible population) in absolute terms, i.e. measured in terms of distance or travel time, their accessibility may vary considerably. A location whose economic activities can reach the accessible population more easily has a higher interpenetration potential than another location whose theoretical market potential is weakened by tariff/non-tariff trade barriers, etc.

In order to take into account the varying accessibility potentials of the markets the individual countries were assigned different weighting factors (see Table 15). The different weighting factors for the countries of Central and Eastern Europe are designed to express the level reached by the reform processes and the intensity of existing relations between the European Community and these countries (see Chapter 2 and Chapter 3.1).

Table 15: Index of accessibility potential weighting factors (short-term effects)²⁰

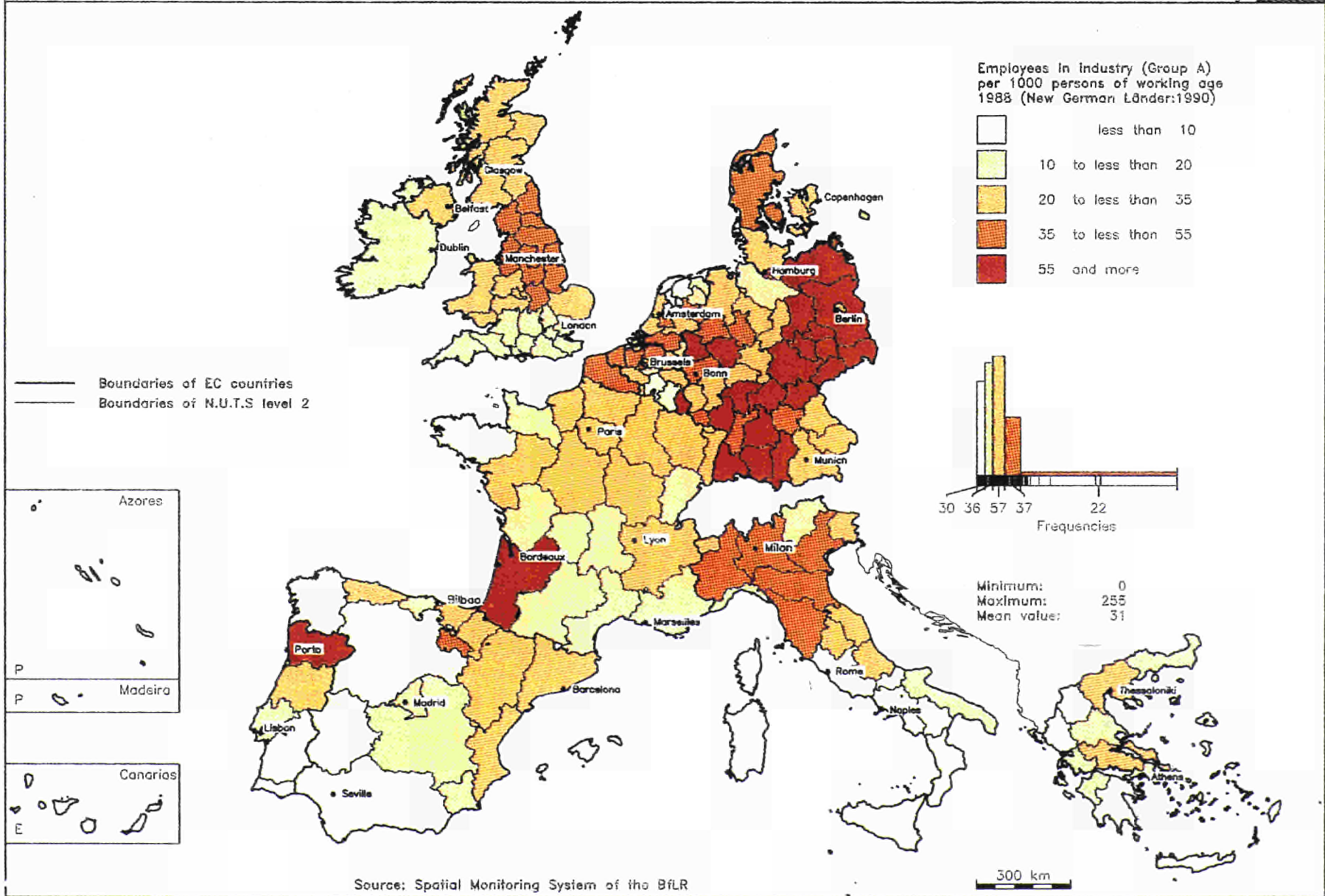
Countries/regions	Weighting factors
EUR 12	100
EFTA	75
Turkey	50
Poland, Hungary, Czech Republic	50
Slovakia	50
Romania, Bulgaria	20
Slovenia	20
Estonia, Latvia, Lithuania	20
Former Yugoslavia (excluding Slovenia)	10
Albania	10
Russia, Ukraine, Belarus, Moldova	10

Source: Empirica.

²⁰ The weighting factors were determined on the basis of statistical data (e.g. intensity of trading relations) and of judgments passed by the East European experts on the progress of reforms, opening of the CEECs etc. by mid-1992. The most recent developments may recommend a slight readjustment of the weighting factors (e.g. upwards for Slovenia). However, this would only slightly affect the results of the analyses as test runs have shown.

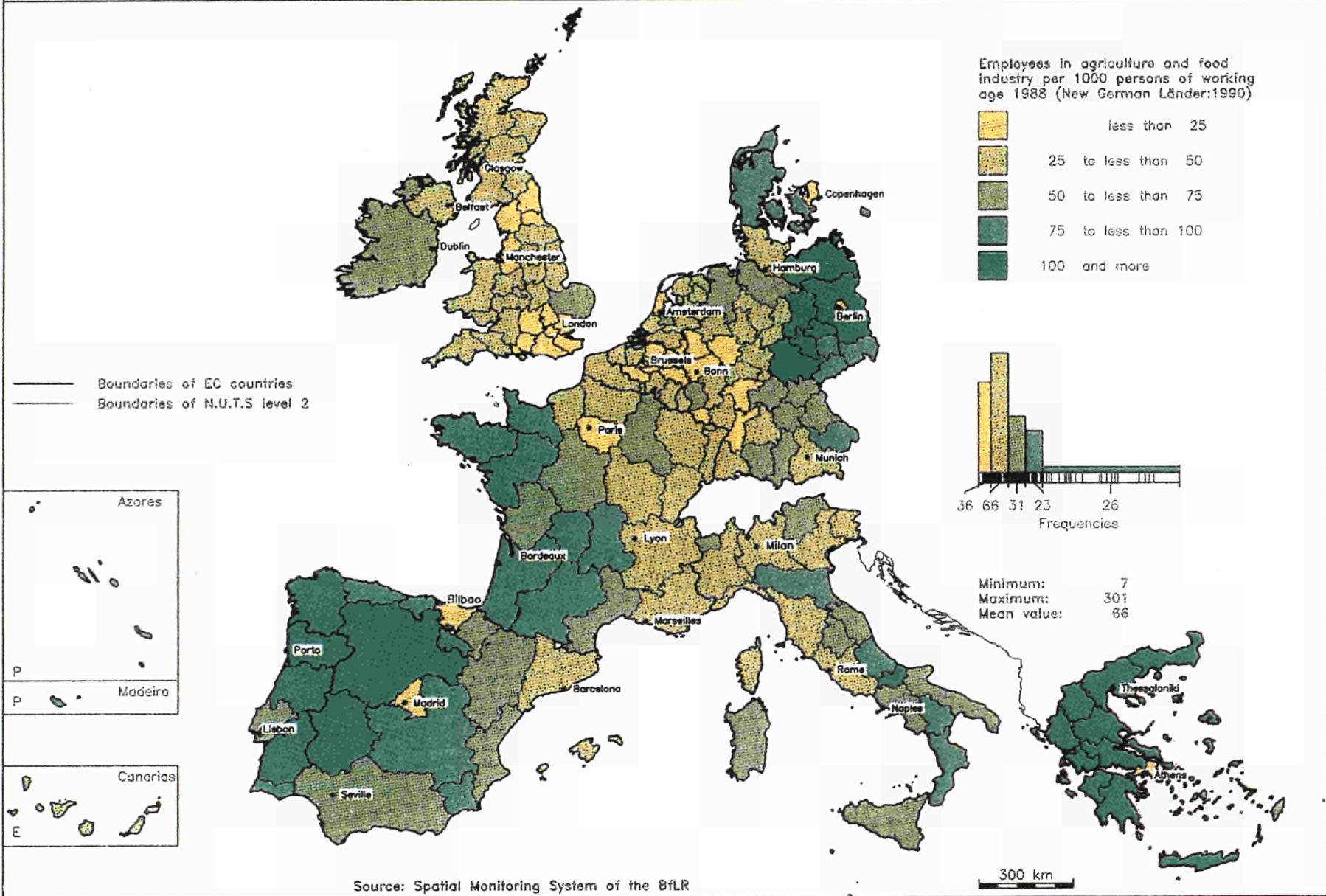
Map 17
Employment in industry (Group A)

Landes
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Raum
ordnung



Map 18 Employment in Agrobusiness

Landeskunde
und
Raumordnung



To simulate travel times between the regions in question, which include, beside the EC Member States, the EFTA States, Turkey as well as Poland, the Czech Republic, Slovakia, Hungary, Romania, Bulgaria, Albania, former Yugoslavia and the western parts of the former USSR, three transport network models are used which cover main road, railway and air traffic connections in Europe. The models were worked out in the context of the abovementioned accessibility study by the BfLR and were extended for the purpose of the present study to cover EFTA and Eastern Europe.

Travel times were measured between central locations of all NUTS 2 regions and between them and centres and regions in the other countries included. Road travel was simulated by using realistic assumptions on travel speeds on different types of highways and other main roads. Railway travel times were taken from the official timetables and the fastest available connections were chosen. The same concept was used for air travel connections. Three distance matrices were calculated:

(i) travel time of individuals using the shortest available connection given free choice of transport means. This usually implies combined transport (road/air, railway/air) on long-distance routes. In this way the typical business journey is simulated;

(ii) transportation time in goods traffic on roads including ferries. This simulation depicts the typical freight transport within the European market;

(iii) travel time by rail-borne transport only. Rail connections unlike road connections are not available throughout the regions and are selective with respect to travel times between different types of location.

The assumption on the trade-off between travel time and benefit of regional potentials which can be reached within a given travel time is shown in the figure below (Figure 18).

This assumption leads to a simplified linear version of the above-discussed general potential model which implies a non-linear degeneration of benefits.

Regional population figures were used to simulate accessible potentials. The calculated index represents a ratio between accessible potential (i.e. population) and travel time. It is important to note that the index is without dimension and allows only a relative measurement of locational advantages or disadvantages and their change over time.

All connections from a Community region to the EFTA countries, the countries of Central and Eastern Europe and to Turkey were examined (see Annex, Maps 2, 3 and 4).

Map 19

The three individual determinants of accessibility potential were indexed in order to be able to link them in an additive manner. Map 19 shows the categorization of EC regions in terms of 'low', 'moderate' and 'high' accessibility potential.

The centre-periphery differential within the Community territory is clearly visible. Locations in north-eastern Italy and the new German *Länder* show a relatively unfavourable accessibility potential in spite of their central geographic location. Good air connections make London and Madrid, respectively highly and moderately accessible centres, while the adjacent regions only show an average or below-average accessibility potential.

Greece does not have a high index of accessibility although the population of Turkey as well as of Central and Eastern Europe was included in the calculations. This is due to the insufficient infrastructural connections in these countries, which means that the theoretically utilizable potentials cannot be reached to the desired extent.

Interpenetration potential

Combining the two determinants economic sensitivity and accessibility potential produces a nine-square matrix illustrating the interpenetration potential of the regions.

Interpenetration potential and types of region

		Accessibility potential		
		High	Moderate	Low
Economic sensitivity	High	Type 1	Type 2	Type 3
	Moderate	Type 4	Type 5	Type 6
	Low	Type 7	Type 8	Type 9

The diagonal (Types 3, 5 and 7) illustrates an average interpenetration potential. The squares lying above this diagonal stand for a high, and the squares lying below, a low interpenetration potential for a region.

Map 20 (Short-term interpenetration — industries)

Map 20 shows which spatial effects are produced by the interaction of economic sensitivity and

accessibility potential. Type 1 has the highest involvement/interpenetration potential while Type 9 has the lowest. It is interesting that in many regions high economic sensitivity coincides with high accessibility potential. Of the 27 regions which have a high level of industrial employment, 17 also have a high accessibility potential. The Ruhr region, south-western Germany and north-eastern Italy all have a high interpenetration potential.

With respect to future effects, however, Types 2, 3, 4 and 7 are also interesting. If the borders in Central and Eastern Europe opened further, for example, Type 2's accessibility potential would rise over the medium term and these regions would move into the group with a high interpenetration potential. Those areas which can be classified in this manner include the new German *Länder* above all, but also, for example, Porto (Type 3).

Regions classified as Type 4 or Type 7 experienced the opposite. They are characterized by a high accessibility potential, but due to the existing economic structure, their degree of interpenetration with Central and Eastern Europe is still relatively low. This can also change if other sectors, for example, the so-called 'modern industries', become more important in mutual trade or investments with the increasing economic development of Central and Eastern Europe. The potential 'highly involved regions' are especially to be found in southern Germany, parts of the Benelux countries and France.

Map 21 (Short-term interpenetration — agrobusiness)

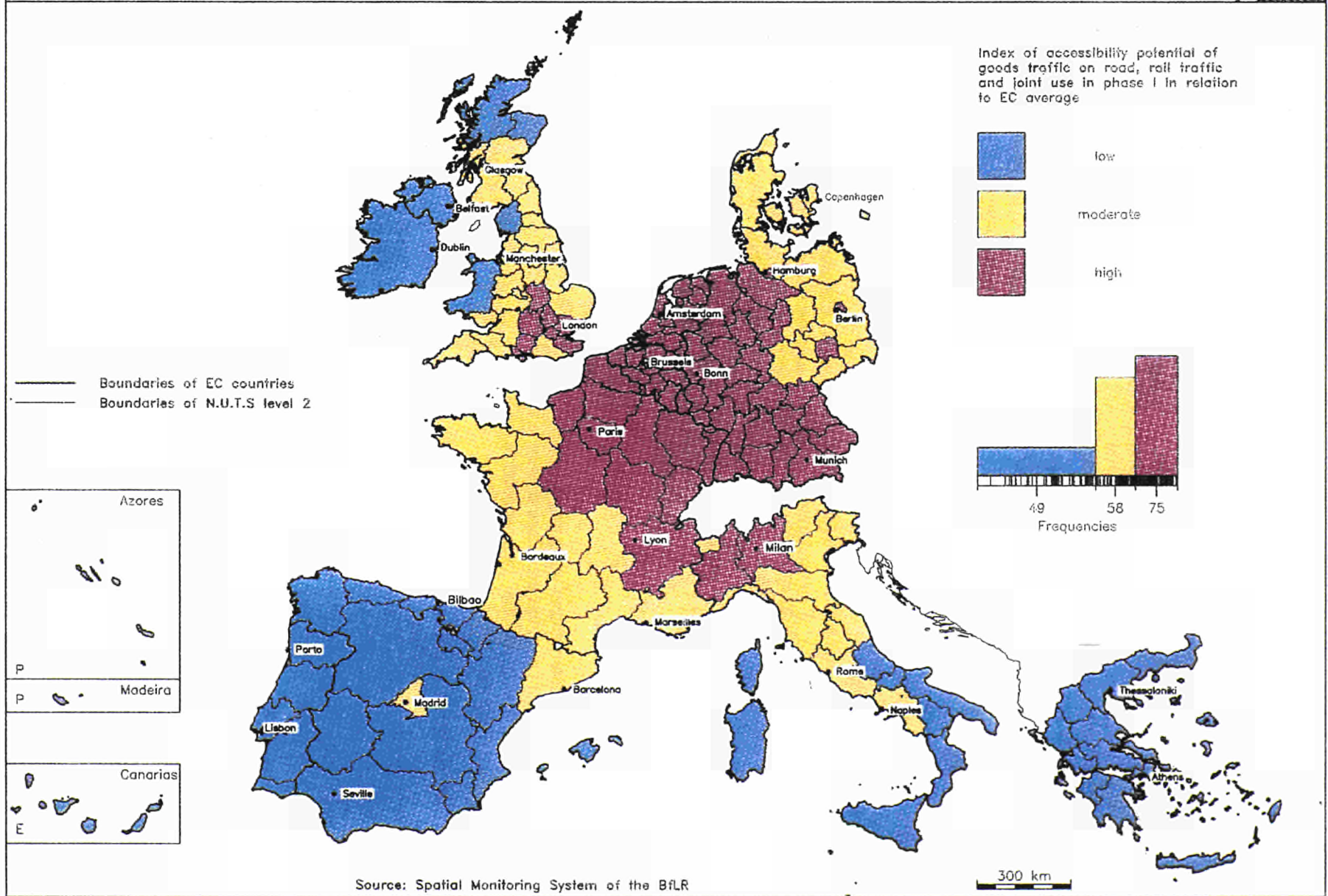
Map 21 illustrates that with respect to the interpenetration potential in agrobusiness, many parts of the Community territory are only affected to a small degree or not at all. If the nine-square matrix is used, only 35 regions of the Community are affected to an above-average degree (Types 1, 2 and 4). Most of them are in the new German *Länder*, in Denmark, in some parts of Bavaria, in northern regions of Germany and the Netherlands, in central regions of France and Brittany.

In contrast, large parts of Greece, Spain, Portugal, Ireland and southern Italy are among the less affected regions (Types 3 and 6) since their accessibility potential is low because of their geographical position.

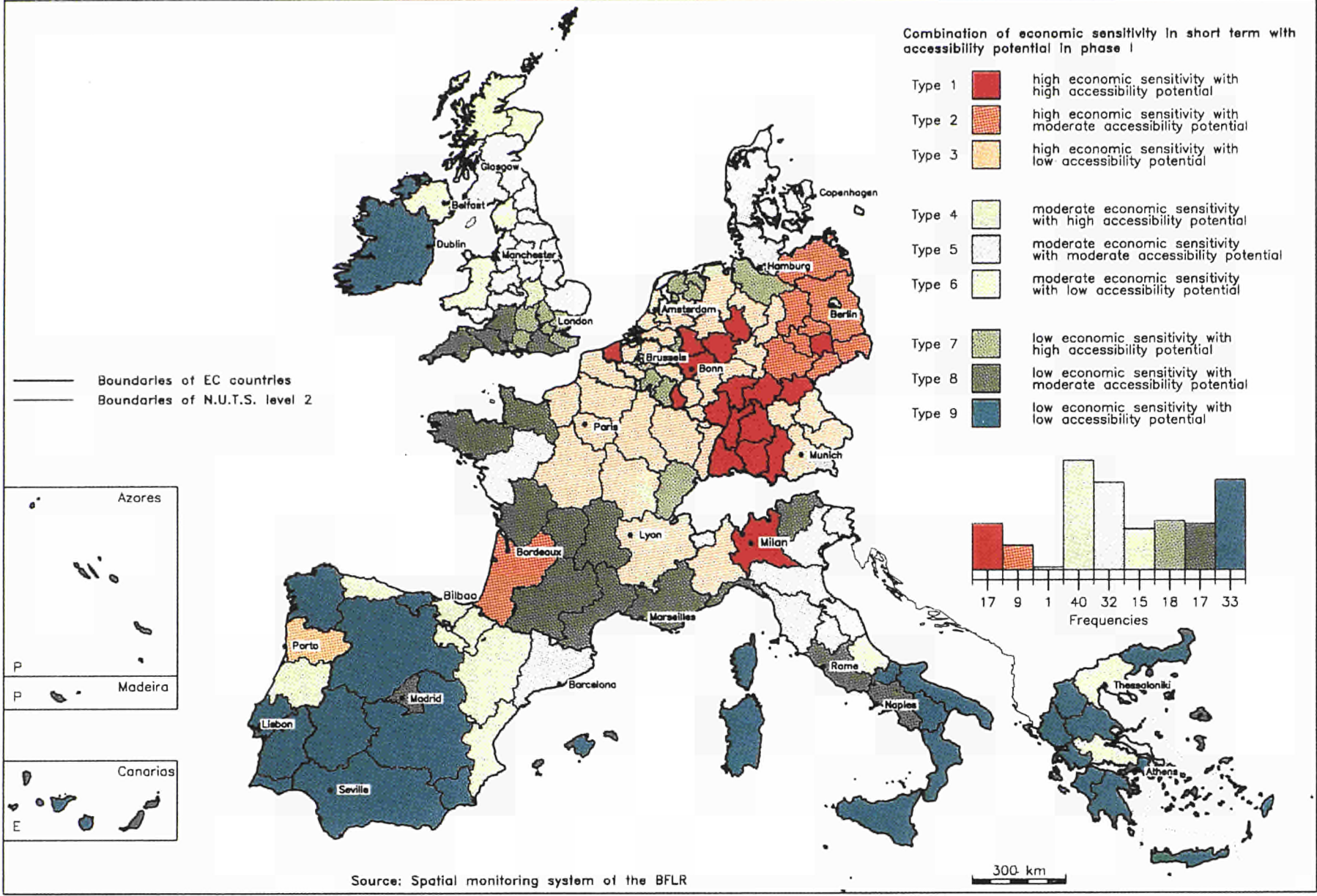
It has to be borne in mind that the agricultural sector is subject to special market regulations, with

Map 19
Accessibility potential index (Phase I)

Landes
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Map 20 Short-term involvement (Group A)



State-purchasing guarantees or market organizations, making direct competition between locations, or direct sales potentials, of less importance than for other economic sectors. This implies that regions which have a high sectoral sensitivity but a low accessibility potential may still be greatly affected if, for example, transitional regulations for agriculture are rescinded, thereby producing greater competitive relations in the EC agricultural markets.

Response potential

To determine the response potential (see also Chapter 1), first the basic indicators 'GDP per capita' and 'development of employment',²¹ which reflect the regions' level of development and development dynamics, were used.

Maps 22, 22a and 23

These maps show a very heterogeneous picture of the Community. There is a clear centre-periphery divergence with regards to the indicator 'per capita GDP'. This is true irrespective of whether the measuring unit 'GDP per capita in ECU' or 'GDP per capita in PPS' is applied. It should be added, however, that the 'smaller' countries Benelux and the less prosperous countries Spain, Portugal, Greece and Ireland come off more favourably when PPS is applied while the new *Länder's* performance is less favourable (see Map 22 and 22a).²² Ireland, Portugal, large parts of Spain, southern Italy and Greece lie far below the EC average. The central regions from Denmark to northern Italy are up to 125% above the Community average. The new German *Länder* all have a per capita GDP below the Community average, with the value for Mecklenburg-Western Pomerania being especially unfavourable.

With respect to the development of employment it appears that only relatively few of the so-called prosperous regions show a growing level of industrial employment at the same time. However, there were large increases, in Spain over the period 1986-89, in large parts of Portugal, in some regions in Greece and in southern England; the

values for the new German *Länder*, however, are especially unfavourable.²³

However, with regard to the question as to how well regions can adapt to changed conditions, i.e. how flexibly they can react, it is not only the level of development and the development dynamics which are of importance. Locational factors which determine the attractiveness of regions to potential investors and offer the preconditions for adapting to changed competitive conditions are also important. Accordingly, two additional determinants composed of a cluster of quantitative and qualitative evaluation criteria were used. These are the infrastructural conditions (BIEHL Index) and the assessment of innovation activities in the individual regions.²⁴

Production-related infrastructure (BIEHL Index)

Transport infrastructure
Telecommunications facilities
Energy supply
Education and training

Innovation activity (Ifo-Index)

R&D expenditure
Share of scientific personnel
Number of enterprises with
autonomous production development
Proximity to universities
Growth in industrial value-added

Map 24

Map 24 shows that there are significant spatial differences regarding the level of 'production-related infrastructure': Spain, Portugal, Greece and almost every part of Italy as well as Ireland, northern parts of Great Britain and the new German *Länder* are endowed with a production-oriented infrastructure which is below average or even far below average (below 50% of the average). On the other hand, infrastructure provision in the great metropolitan areas (Paris, Brussels, Amsterdam and North Rhine-Westphalia) is extremely high — here the index value is more than double the Community average.

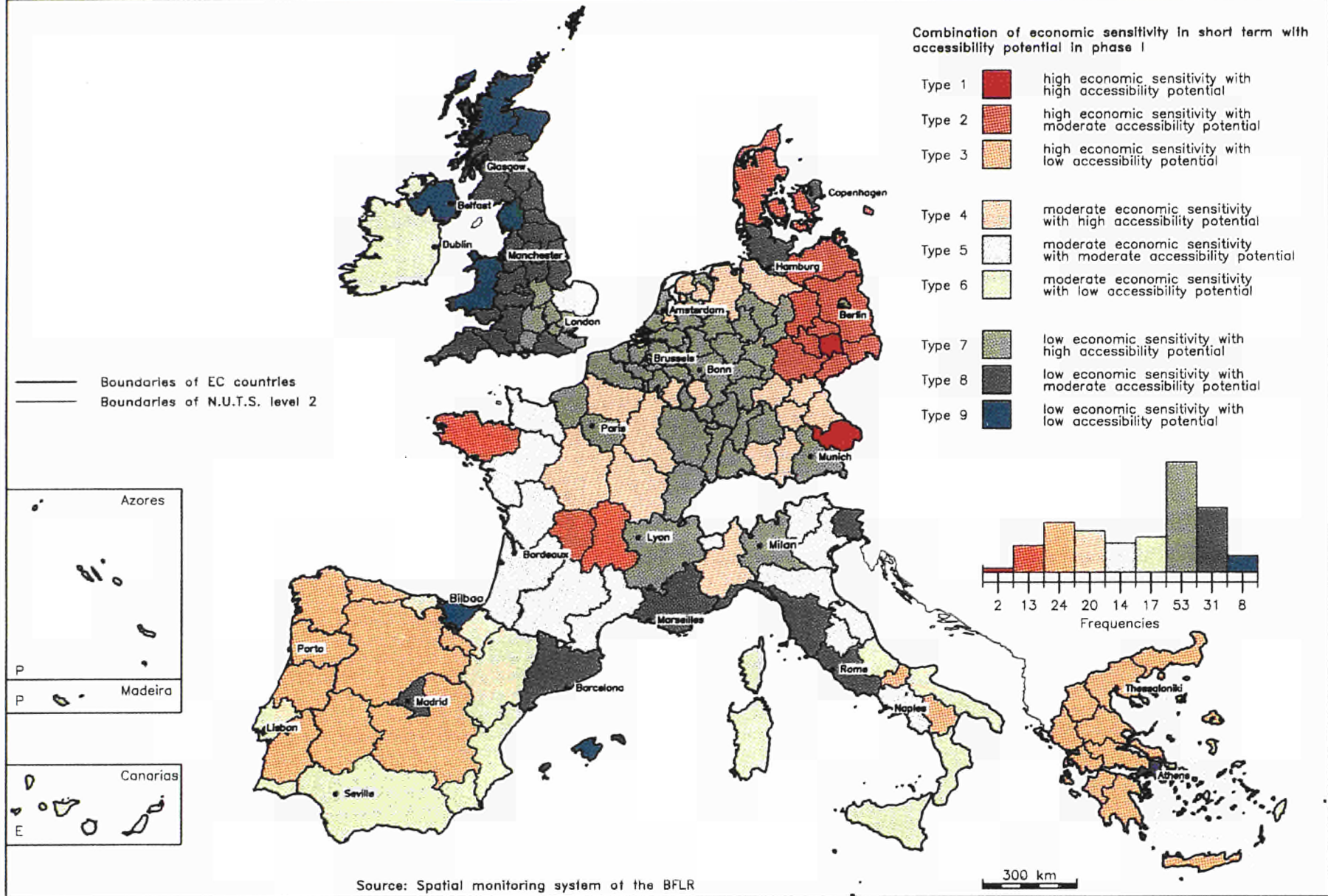
²¹ The 'development of unemployment' indicator was not used because unemployment in a region may increase or decline simply as a result of demographic changes, i.e. without new jobs being created or existing ones being lost. The indicator 'development of non-agricultural employment' therefore appears to be a better indicator of the economic development of a region.

²² These differences should be borne in mind since in the following analysis GDP per capita in ECU was used.

²³ Employment developments over the years 1989-90 were used for the new German *Länder*. Since 1990 employment in the new German *Länder* has shown a downward trend. They therefore remain in the lowest group even if the latest employment figures are taken into account.

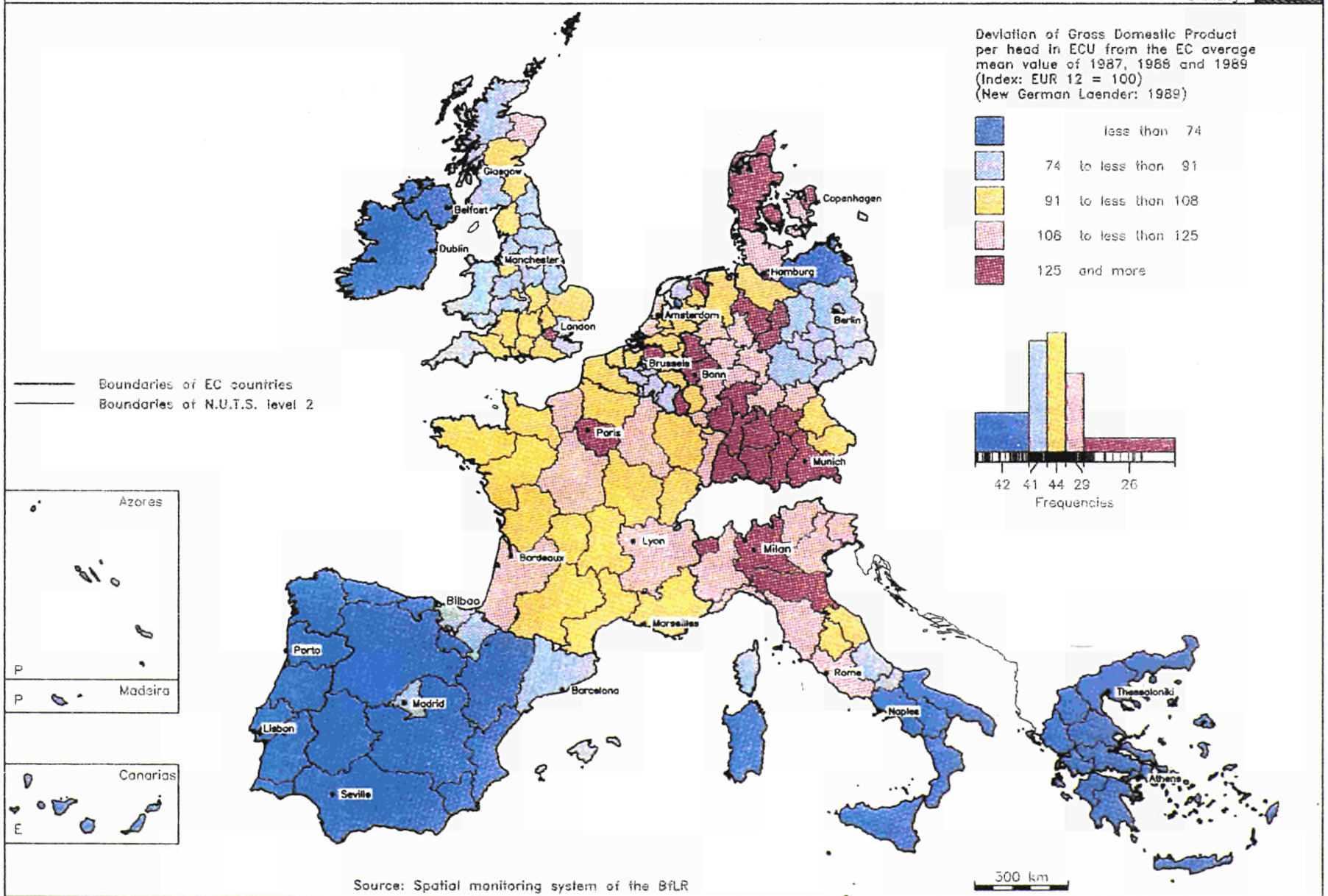
²⁴ A high correlation was found between R&D and export orientation using various regression models (see, for example, DIW 47/88).

Map 21 Short-term involvement (Agrobusiness)

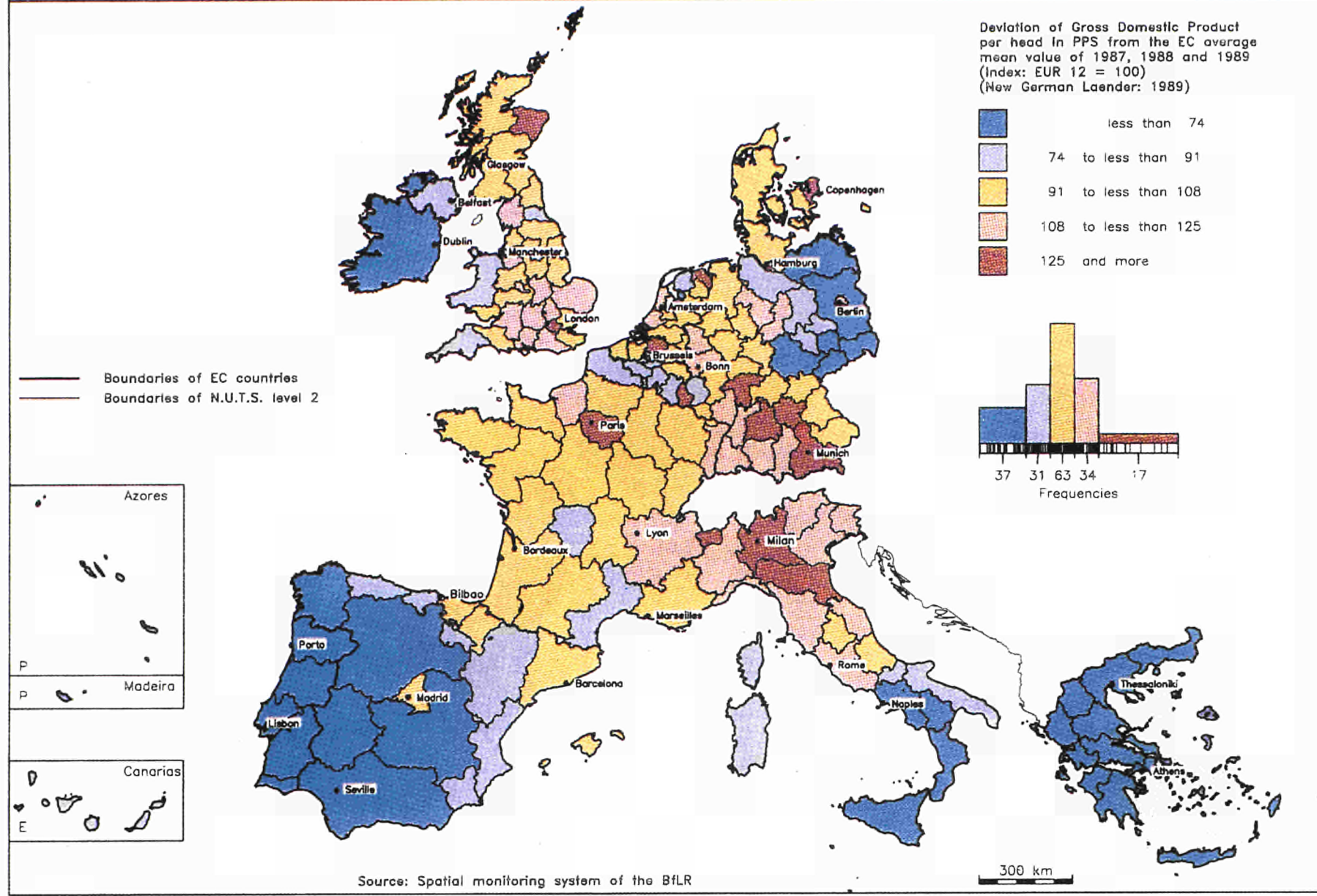


Map 22
Gross domestic product

Landes
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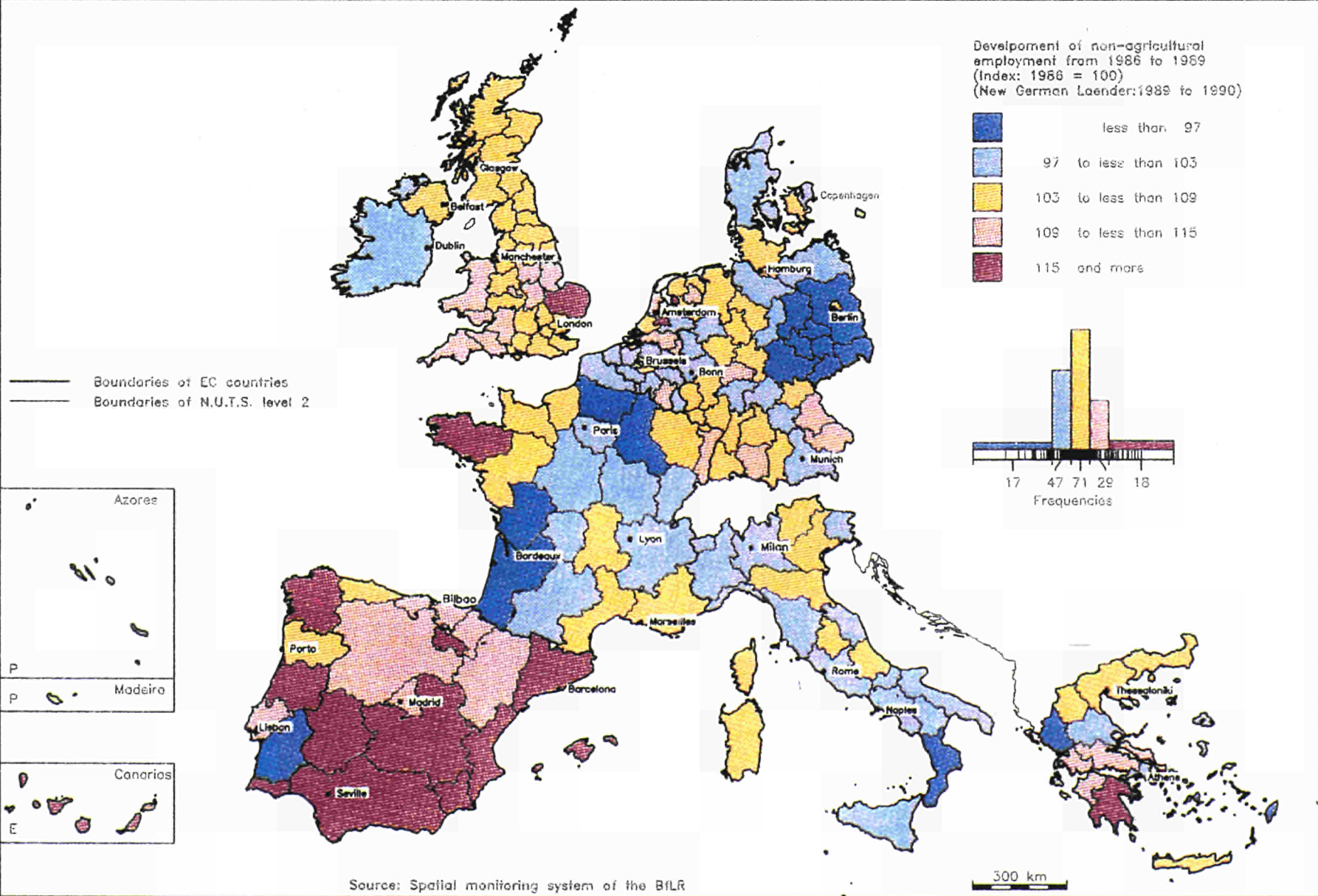


Map 22a Gross domestic product



Map 23 Development of employment

Landes
kunde
und
Raum
ordnung



Map 25

Map 25 shows the results of the synthetic index called 'innovation activity', which were obtained with the aid of quantifiable variables (R&D spending) and qualitative assessment criteria (Ifo survey results). On a rough grid Community regions are divided into three almost evenly distributed groups. An 'innovation curve' becomes clearly visible on the Mediterranean coast, stretching from south-western Spain across the cities of Barcelona and Marseilles to Rome, and northwards to Lyon and Milan. At the same time, there is a cluster of innovation-oriented regions in the centre of the Community, extending from southern Germany across North Rhine-Westphalia to Brussels and Amsterdam. Finally, there are individual 'innovation islands' such as Madrid, Paris and London, situated in areas with more moderate innovation potentials. For the new German *Länder*, recent surveys suggest relatively little innovative activity, except for Thuringia and Saxony.

Finally, the indicator 'SO₂ concentration in the air' was also used to demonstrate the environmental pollution in an area. This indicator behaves in a manner directly opposite to the other variables used: the greater the environmental pollution, the lower the competitiveness of a region. Air pollution is not only a criteria for the 'well-being' of a region's population, it is increasingly being taken into consideration when decisions on investment are taken and may hence be a significant factor for the attractiveness and future economic development of a location.

Map 26

Map 26 shows that the SO₂ concentration is very uneven within the Community territory. While the centrally located areas (the Benelux countries and Germany, especially the new German *Länder*) as well as highly industrialized locations in the United Kingdom, and northern Italy are polluted above-average, large parts of France, Spain, Portugal, Greece and Ireland are only scarcely affected by air pollution. Exceptions are the large agglomerations in these countries, such as Barcelona, Rome, Paris, Athens as well as the regions of Galicia and Aragon in Spain.

It is interesting to note that some of the Community regions which are classified as competitive or attractive in terms of the so-called hard locational factors (development of non-agricultural employment, level of GDP per capita as well as producer-related infrastructure and innovation potential)

have particularly bad environmental conditions. If one accepts the abovementioned assumption that the environment has an impact on the competitiveness of a region, the strong position of these areas would fall off to a certain degree.

Response potential index

In order to obtain the response potential indicator needed to assess possible spatial effects, the five individual indicators were standardized and combined. Since this environment-related indicator was the only so-called soft locational factor used in the subsequent analyses, it was weighted at 50%.

Map 27

Map 27 shows the response potential, a synthetic index in the rough model dividing the possibilities into three categories of 'high/moderate/low'. Along with a large part of regions which have an above-average response potential, there are very adaptable regions along the corridor stretching from Manchester-London-Paris-Amsterdam-Brussels across North Rhine-Westphalia to southern Germany.

It is apparent that many regions generally considered to be weakly developed, or to have a weak structure, definitely have an average response potential. Cases in point are regions in southern Spain, Ireland and northern parts of the United Kingdom.

To ascertain the importance of SO₂ pollution for a region's response potential, a calculation was made leaving this indicator out of consideration. The result was a second line stretching from Barcelona via Marseilles to Milan along which lie regions with an above-average response potential. In contrast, some regions' response potential index decreases when SO₂ pollution is not taken into account (e.g. parts of Portugal and Italy).

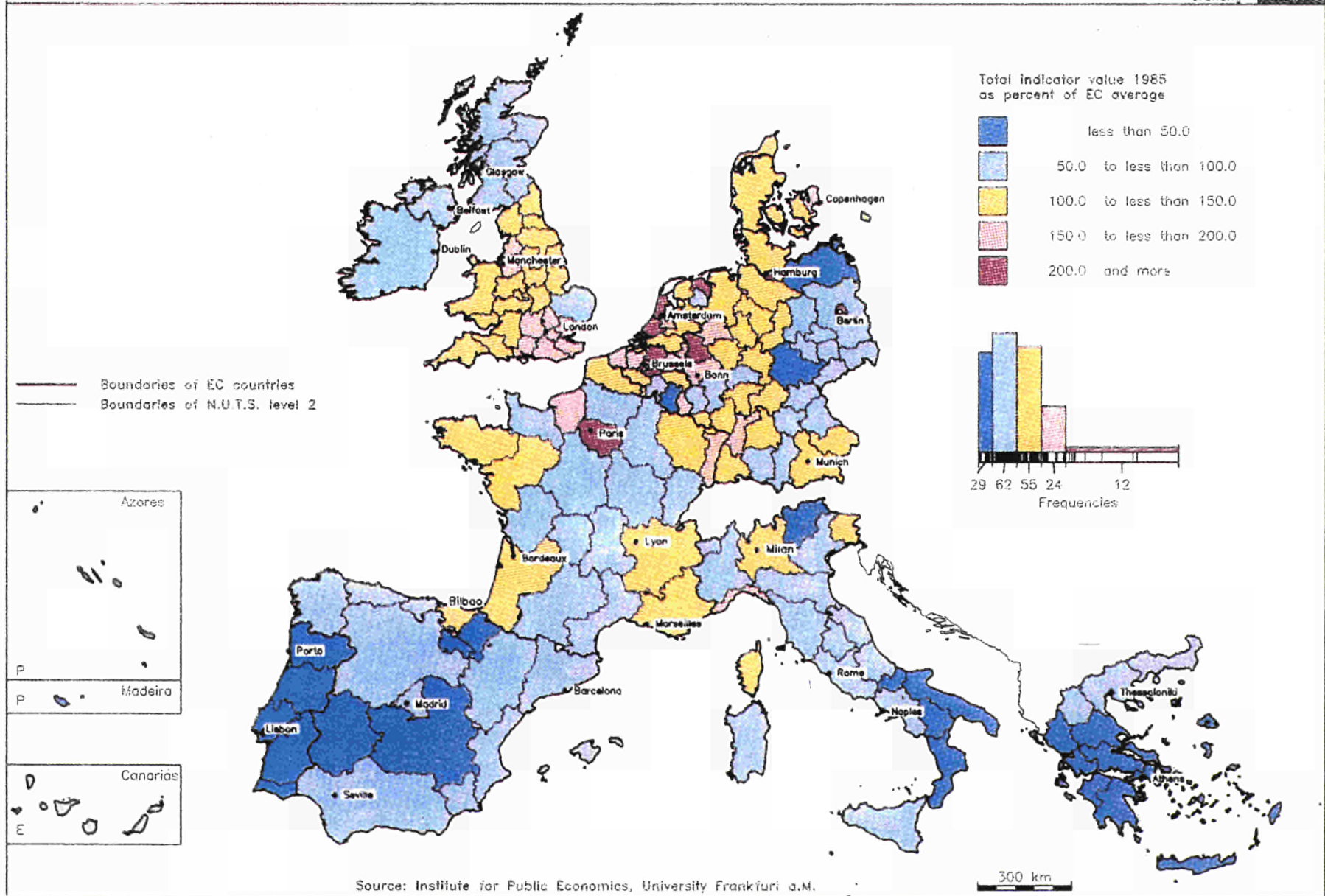
Table 16: Impact of SO₂ pollution on EC regions' response potential

Decreasing index value	Increasing index value
Köln	Extremadura
Lombardia	Abbruzzi
Haute-Normandie	Limusin
Provence-Alpes-Cote d'Azur	Centro
Veneto	Acores
Braunschweig	Umbria
Aragon	Marche
Cataluna	Cantabria
Hovedstadsregionen	Centre
Kassel	Castilla-La Mancha
Oberpfalz	
Grampian	

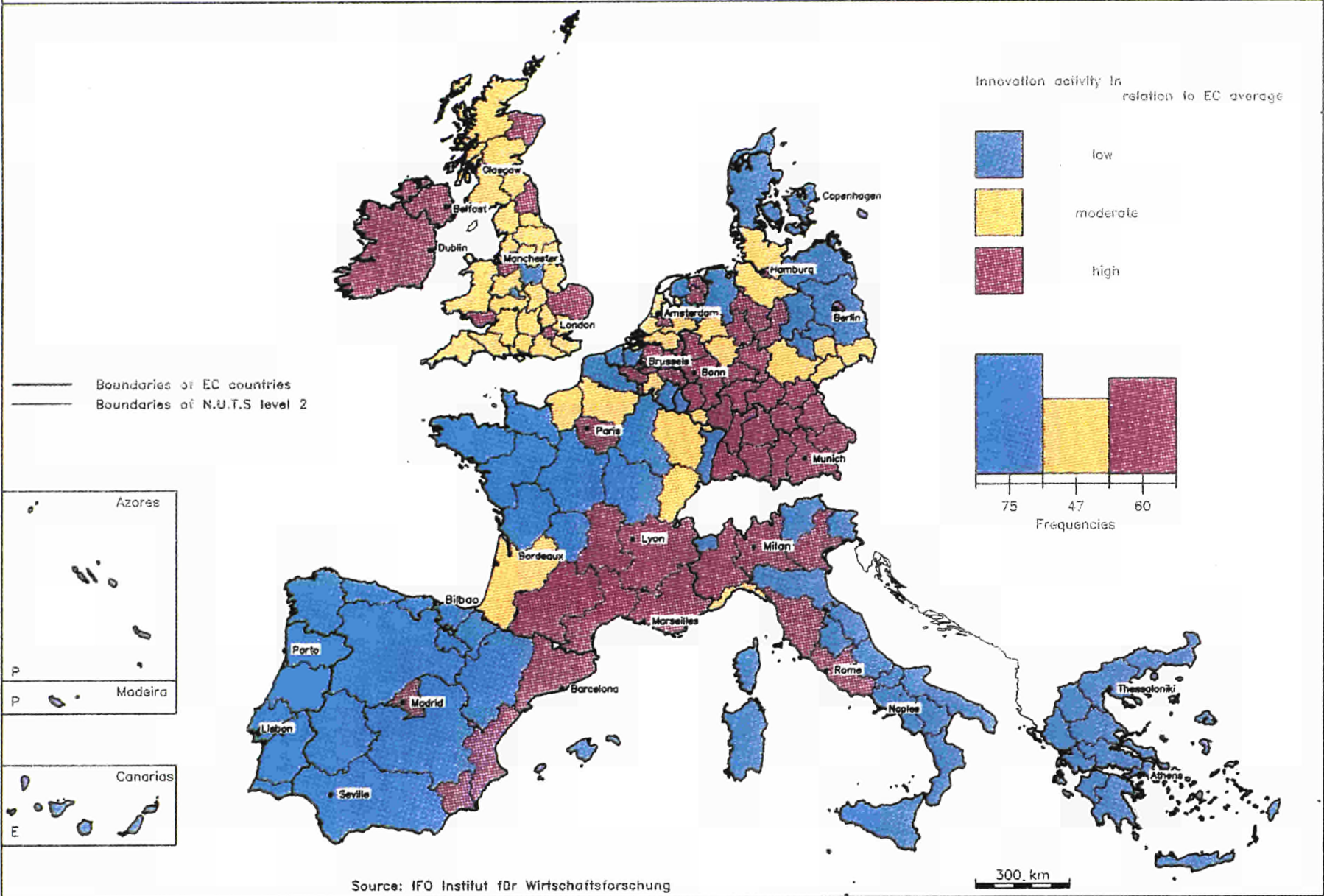
Source: Empirica.

Map 24
Production-related infrastructure

Landes
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und
Raum
ordnung



Map 25
Innovation activity



Short-term likely impact

The results of the first step (high/medium/low interpenetration) were then combined with the response potential index. This once again produced a nine-square matrix, creating a typology of the EC regions based on the likely impact.

		Interpenetration		
		High	Moderate	Low
Response potential	High	Type 1	Type 2	Type 3
	Moderate	Type 4	Type 5	Type 6
	Low	Type 7	Type 8	Type 9

The ends of the diagonals mark extreme points of possible spatial effects. The respective regions can be labelled as follows:

Type 1: Regions with growth potentials.

Type 7: Regions under adjustment pressure.

Type 3: Regions with future growth potentials if their interpenetration potential increases.

Type 9: Regions under future adjustment pressure if their interpenetration potential increases.

Regions lying between these extremes will experience negative or positive effects to a lesser extent.

Maps 28 and 29

Maps 28 and 29 show the results of the short-term likely-impact model. According to these results, the greatest short-term effects will be felt by the regions classified as Type 1 and Type 7.

Type 1 includes regions which obtain growth impulses through the opening of the borders. These regions are mostly recognized as the 'winners': i.e. competitively strong regions with high additional interpenetration potential. Type 7, by contrast, will be a loser in the opening up between East and West over the short term. The greatest disadvantages are for the new German *Länder*: their degree of interpenetration is very high as a result of their industrial structures (key industries: mining and heavy industry) and as a result of traditional connections (infrastructural interpenetration), but their response potential is at present very low.

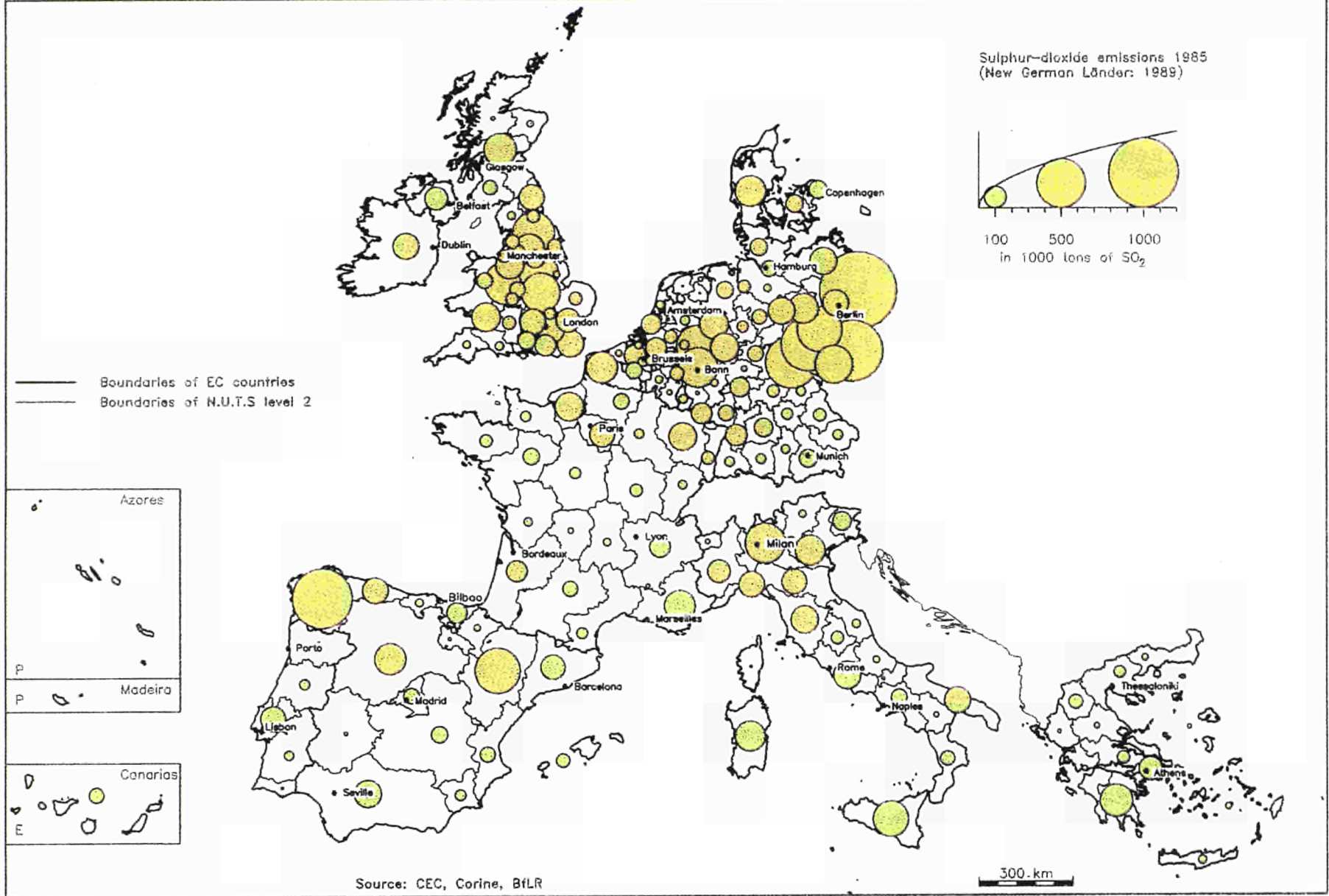
Type 1	Type 7
Zuid-Holland	Mecklenburg-Western
Utrecht	Pommerania
Antwerpen	Magdeburg
Düsseldorf	Dessau
Hannover	Halle
Hamburg	Leipzig
Detmold	Chemnitz
Gießen	Dresden
Darmstadt	Turingia
Rhine Hesse-Palatinate	Brandenburg
Karlsruhe	
Freiburg	
Stuttgart	
Tübingen	
Central Frankonia	
Schwaben	
Upper Bavaria	

With respect to future developments, however, Types 6 and 8 are interesting: they have only been marginally affected so far, but they could join the ranks of the potential losers if their interpenetration potential increases in future. These groups include Ireland, northern parts of the United Kingdom, southern and central regions in Spain, Cantabria, Centro and Algarve in Portugal (Type 6) as well as Norte (Portugal) and two regions in France (Champagne-Ardenne and Poitou-Charantes) (Type 8).

Map 29 shows the spatial effects on the Community territory taking the sensitivity of the agricultural sector as the basis: a clear north-south divergence is visible. Of the regions characterized by above-average importance for agrobusiness, only four regions have growth potentials as a result of a high accessibility and response potential (Niederbayern, Schäben, Tübingen and Utrecht). All agricultural regions in the south of the Community, on the other hand, will be subjected to (additional) adjustment pressure. Regions in France or Denmark with an above-average number of persons working in agrobusiness (and, to a lesser extent, Ireland, the United Kingdom, northern Italy and western Spain) belong to Type 5 or 2. This means that the spatial effects with regard to the sensitivity of agrobusiness tend to be of little significance (moderate).

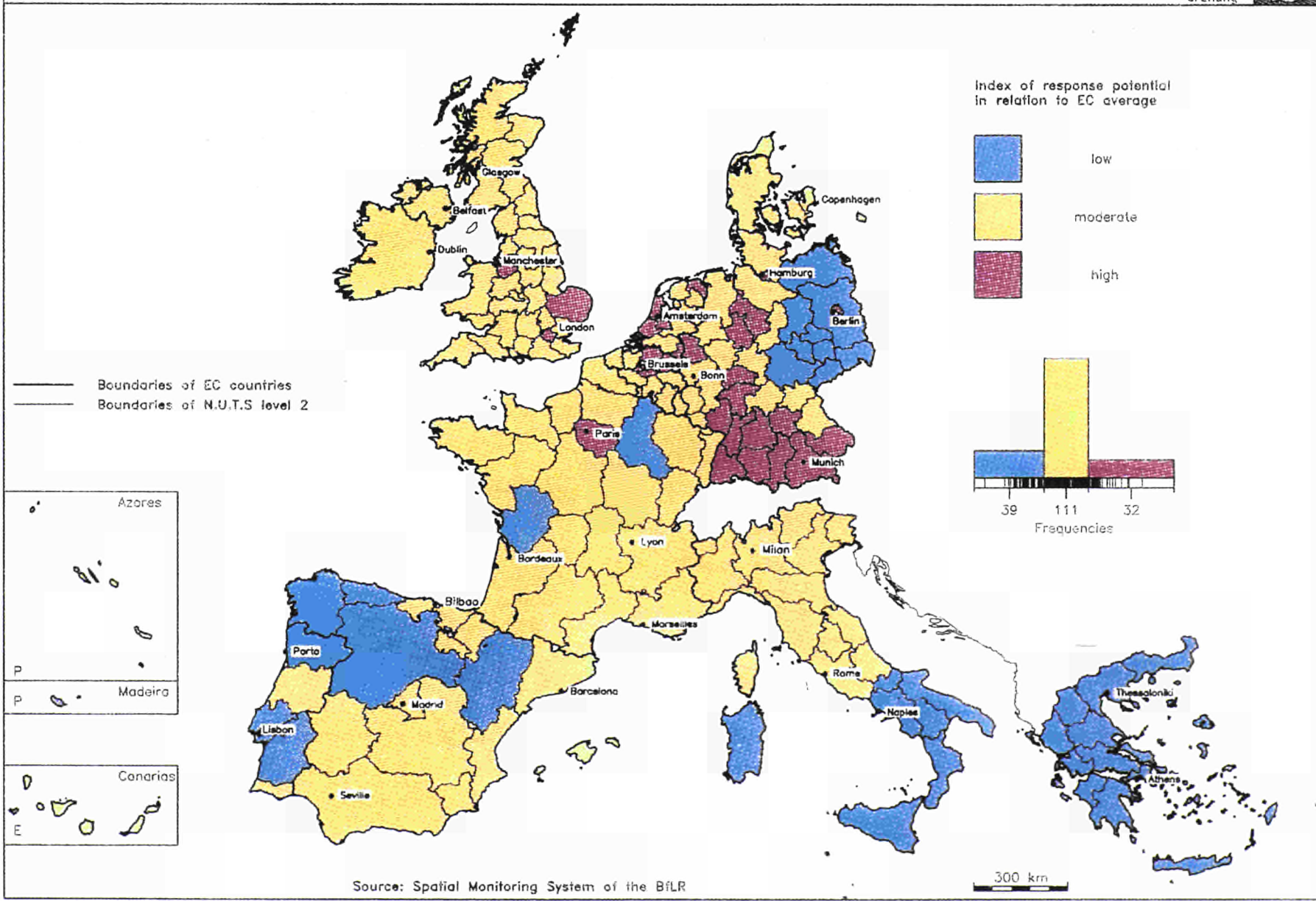
The situation in the new German *Länder* is particularly unfavourable: with the exception of East Berlin, Dresden and Chemnitz, the new German *Länder* belong to Type 7: 'high interpenetration/low response potential'. This means that structural adjustment pressure is still increasing at present

Map 26 Sulphur-dioxide emissions

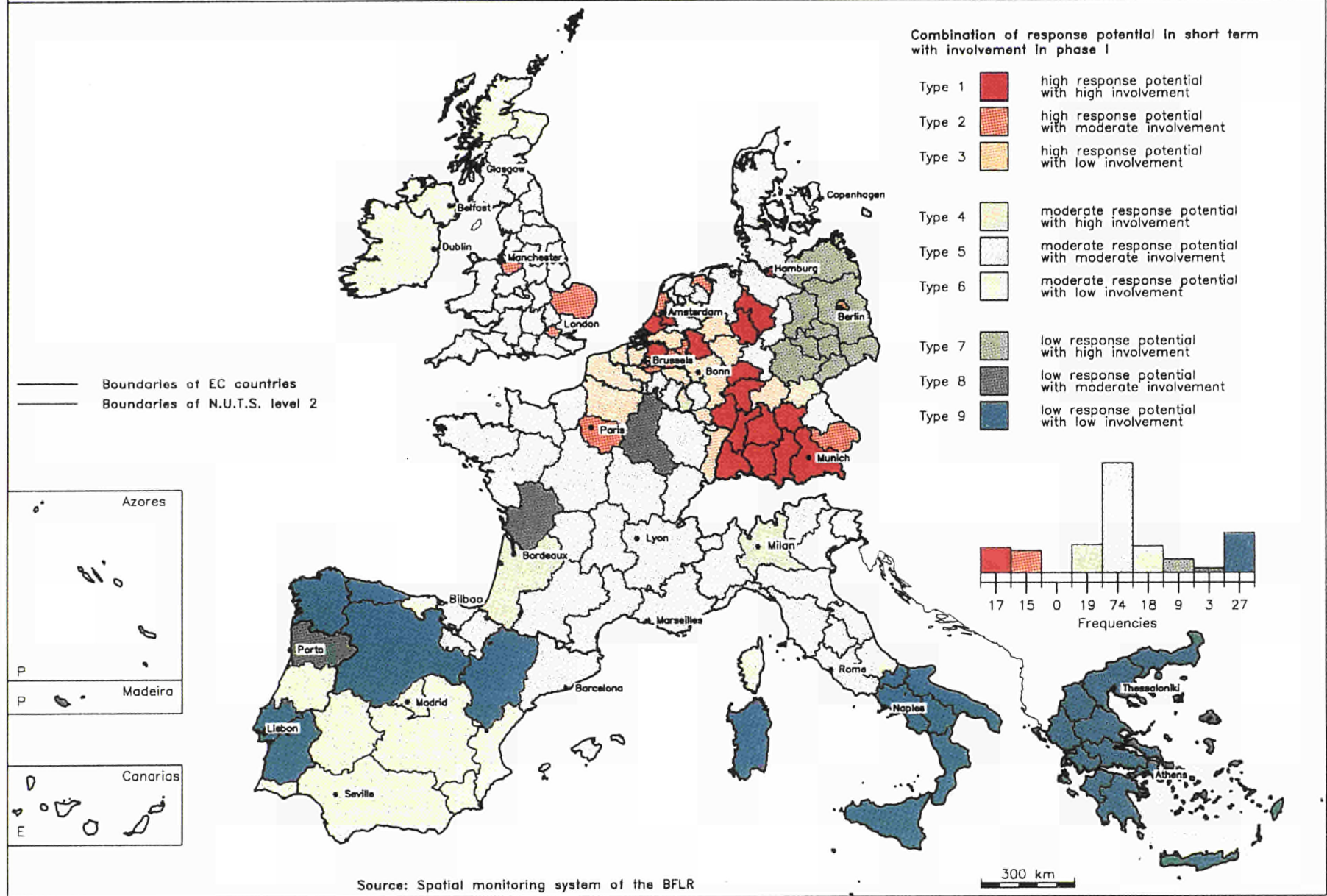


Map 27
Response potential

Landes
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Map 28 Short-term likely-impact model (Group A)



as a result of the opening up of the borders. A better competitive position cannot be expected until regional economic structures improve.

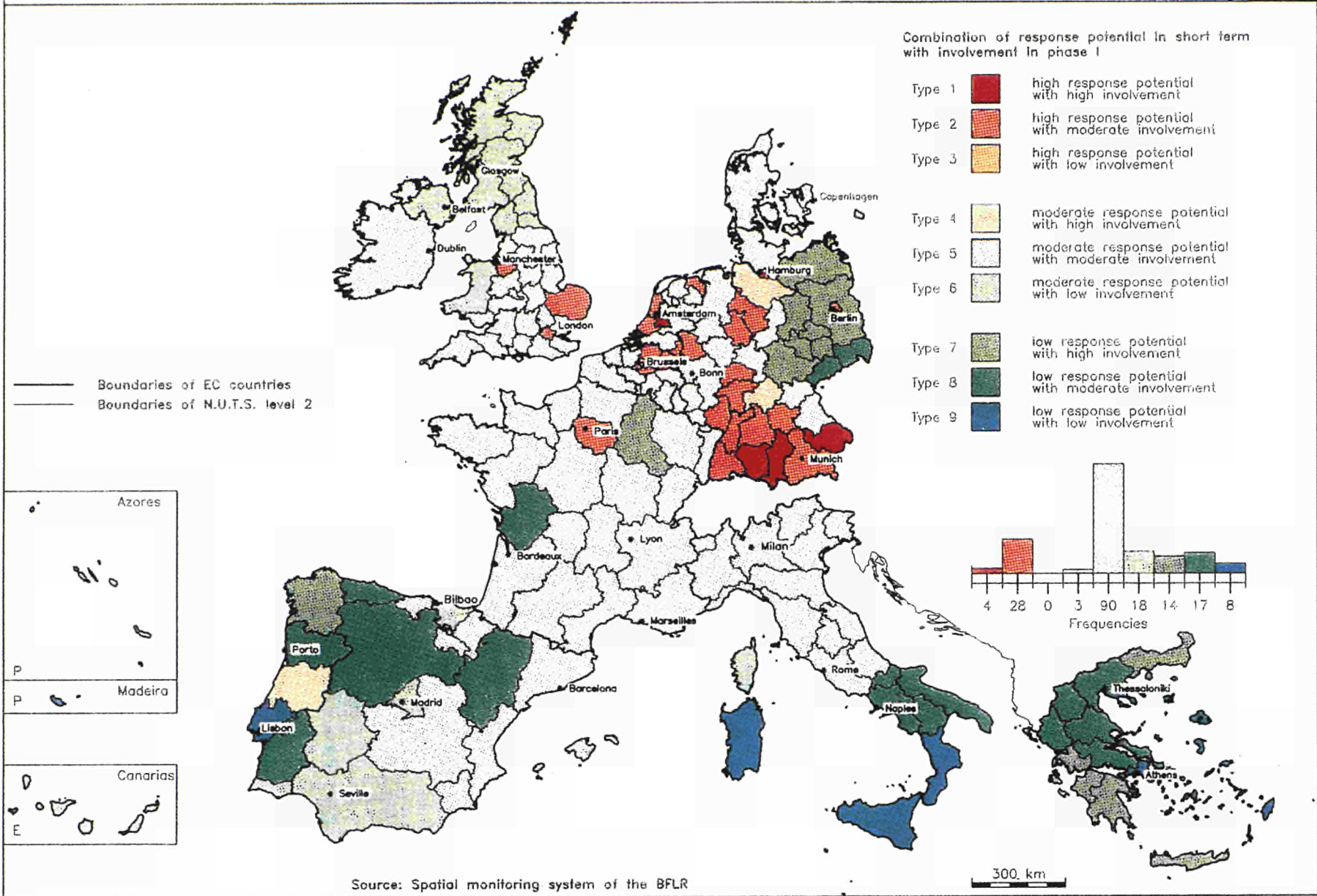
Other regions with the highest sensitivity are Galicia (Spain), eastern Macedonia, Dytriki-Ellada, Peleponnisos and Kriti (Greece) as well as Champagne-Ardenne (France) (Type 7). Centro (Portugal), in contrast, though also strongly affected due to the important role of agriculture, is considered more able to respond to the new challenge (Type 4).

No short-term effects are expected for Attiki (Greece), the Italian tourist locations of Sicilia, Calabria and Sardegna (Italy) and Lisbon (Portugal) since their interpenetration and response potentials are below the EC average.

Whereas large parts of Spain come under the 'average type' (Types 5 and 6) as regards agriculture and industry, the regions of Asturias, Castilla-Leon and Aragon are likely to experience slightly negative effects for their agriculture from the opening of Central and Eastern Europe (Type 8).

Large parts of the United Kingdom and Ireland also fall under the 'average type' with the exception of Cheshire, Greater Manchester, Greater London and East Anglia. They may experience additional growth opportunities in the wake of the opening processes in Central and Eastern Europe because of their relatively high rate of interpenetration and their high response potential.

Map 29
Short-term likely-impact model (Agrobusiness)



4. Possible spatial developments in Central and Eastern Europe in the medium term (scenarios)

In view of the dramatic upheavals and changes that have taken place in the countries of Central and Eastern Europe over the past three years, it is difficult to forecast the future spatial development of these countries over the medium term which we defined as a period of 10 to 15 years (i.e. up to 2005 to 2010). In theory, two diametrically opposed development processes are conceivable, both of which are outlined below using a positive and a negative scenario (see Figure 19).

In the positive scenario, the reform measures are, on the whole, successful, and the existing development potentials can be utilized to the full. As a result, the prospering regions (see Chapter 2) expand to include more and more parts of Central and Eastern Europe. In the course of this general upswing, the existing economic, social and spatial problems are lessened, and ethnic tensions can be averted or reduced. The countries of Central and Eastern Europe are moving towards normalization. This entails dynamic restructuring and modernization processes and a more or less rapid process of catching up with the West. The standard of living, employment situation, infrastructural and environmental conditions markedly improve, warding off the threat of migratory movements.

Concomitant to the expansion of the prospering regions, the degree of involvement and interpenetration between Eastern Europe and the Community territory increases considerably. Flows of goods and services, capital and persons increase and develop more and more into a bilateral exchange. Both sides benefit from the increasing interpenetration between the regions of Eastern and Western Europe: comparative cost advantages are exploited, technical modernization is

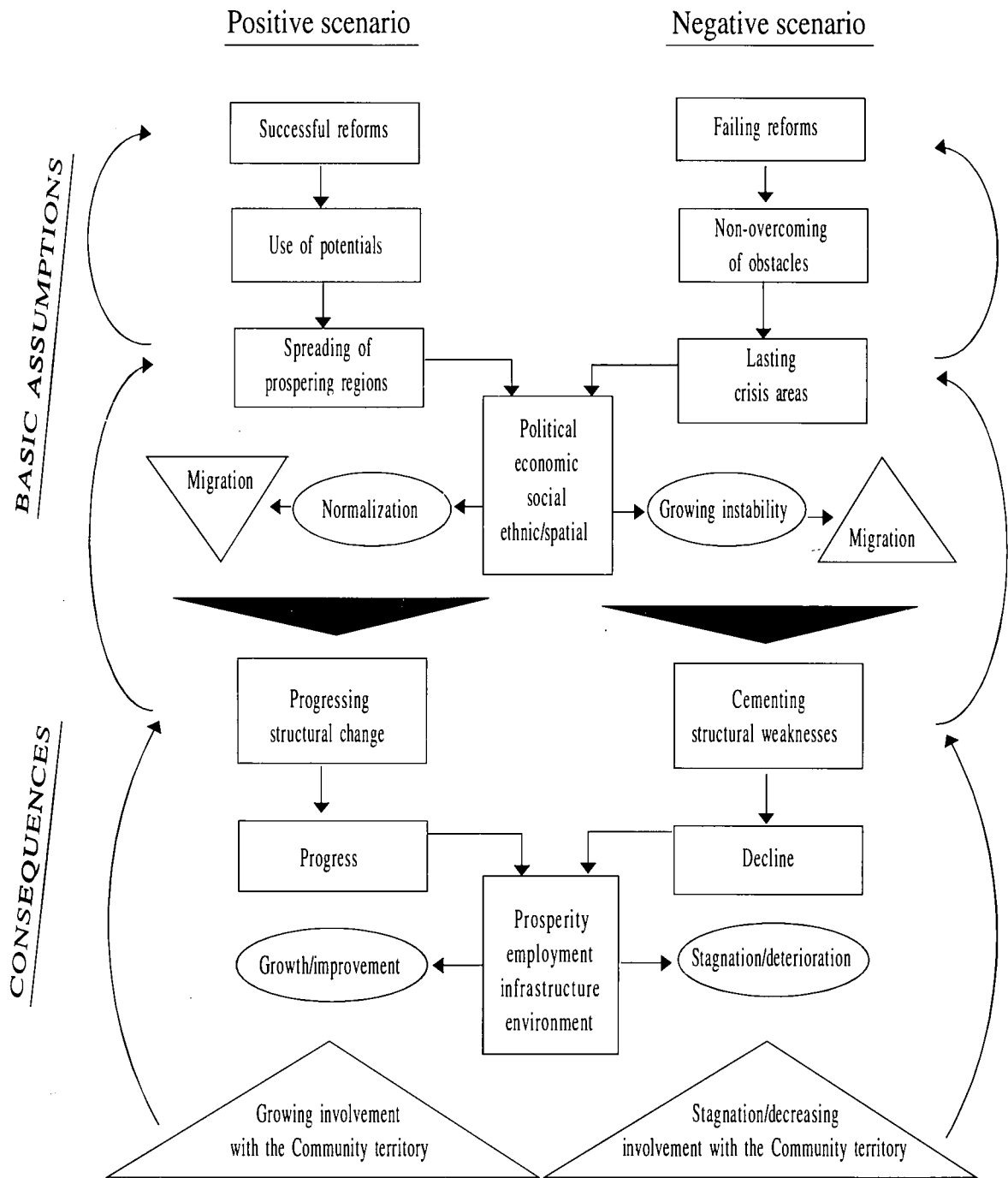
making progress and structural change accelerated.

Structural change in turn releases impetuses for growth in Central and Eastern Europe, expediting the process of catching up with the Community territory and facilitating Eastern and Western Europe's growing together.

In the negative scenario, on the other hand, Central and Eastern Europe remain in a protracted crisis. They fail to overcome the existing obstacles to development. The problems in the various parts of Central and Eastern Europe persist and even intensify. This leads to increased instability, to mounting social and ethnic tensions, to the spreading of local trouble spots and to increasing migration. Structural paralysis of the economy and politics and widespread instability obstruct the process of growth. Even worse, the gap between Eastern and Western Europe widens in terms of prosperity and technology: the integration of Europe as a whole cannot be expected in the foreseeable future. This gives rise to serious disadvantages for both sides: the marginal degree of interpenetration with Western industrialized countries means that the various regions of Eastern Europe lack the vital impetus for growth. A growing pressure from migration weighs on the various regions of the Community territory, and — under a European or international crisis management process — the need to transfer huge amounts of capital to Eastern Europe becomes still more imperative.

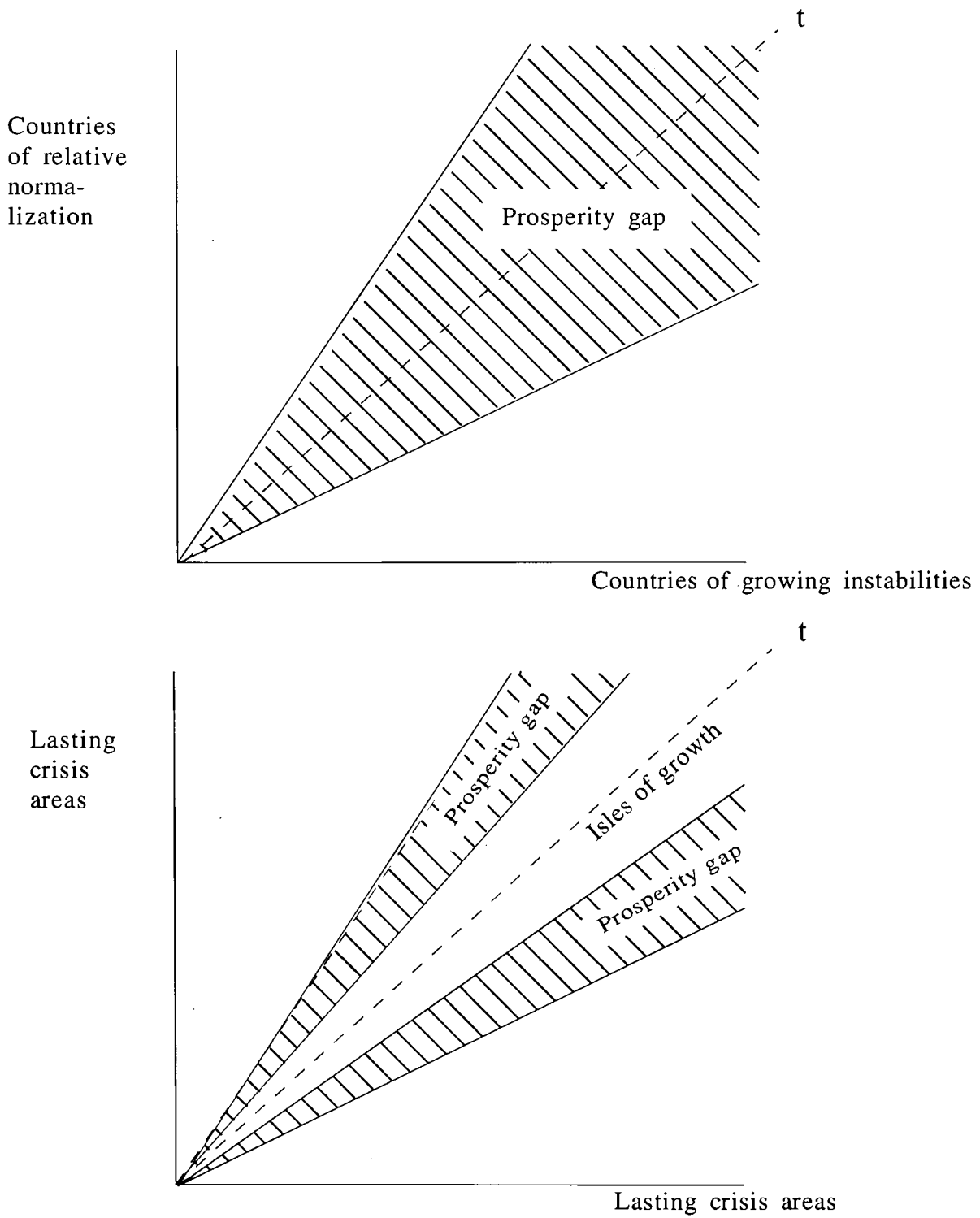
Both of the scenarios outlined above assume extreme forms of future development and appear — at least for the territory of Central and Eastern Europe taken as a whole — to be unrealistic. What

Figure 19: Scenarios



Source: Empirica.

Figure 20: Dimensions of future development paths in Central and Eastern Europe



Source: Empirica.

is emerging is a spatially very heterogeneous development process in Central and Eastern Europe over the coming years. The following scenario is perhaps more realistic.

4.1. Basic assumptions

Likely path of future developments

Two dimensions of future developments must be distinguished:

1. On a national level, the gap between the north-western and the south-eastern countries of Central and Eastern Europe will widen further. While the so-called 'northern belt' becomes an area of relative normalization, other countries are likely to become countries of growing instability in terms of mounting political, socio-economic, environmental and/or ethnic problems.
2. Within each country, pronounced regional development gaps will emerge. While there will be a number of lasting crisis areas which fail to overcome their present structural weaknesses, some isles of growth may emerge which will experience dynamic growth, technological modernization and a relatively speedy catching-up process *vis-à-vis* the West.

The two dimensions of probable future developments may be defined as follows.

Relative normalization v growing instability

The relatively advanced countries of Hungary, Poland, the Czech Republic (and possibly Slovenia) will follow the path of relative normalization. In the medium term, it can be assumed that the democratic system will become stronger and the economic downturn will come to an end in these countries. Real economic growth appears to be possible in Hungary and the Czech Republic even from 1993. According to the latest forecast (September 1992) the Hungarian Government expects a growth rate of the GDP of 0 to 3% in 1993 and of 2 to 4% in 1994 (see EC 1992d). In the case of Poland it is at least conceivable that economic output will cease to decline any further.

However, the term relative normalization does not mean that these countries will not face any difficulties in the process of reforming and restructuring in the years to come. Nor may the grouping of

these countries together for the present purposes be understood as implying that they will undergo uniform development. On the contrary, these countries will face very different problems in the medium term, which they must endeavour to overcome:

Rapid population growth, chronic unemployment and lasting migration flows in Poland.²⁵

Influx of immigrants and ensuing integration problems as well as a heavy burden of debt in Hungary.

Political, economic and social problems in the wake of the so-called 'velvet divorce' in the Czech Republic and Slovakia.

Need for political and economic reorientation in Slovenia after its secession from the former Yugoslavia.

Yet, in spite of all the differences and problems, the reform measures in these countries may prove successful in the medium term, laying the most important foundations for the process of catching up with the West and for the growing together of the various regions.

The way in which the other countries of Central and Eastern Europe are likely to develop, on the other hand, hangs very much in the balance. A trend towards permanent stability or the beginnings of growth processes are hardly visible in any of these countries. On the contrary, in several countries, such as Albania and the CIS, the existing instability threatens to increase even further, given the basic supply problems there. In Romania, Bulgaria and the Baltic States too, only slow progress in the direction of a market economy is discernible — in spite of the creation of new legal frameworks (see Chapter 2). In the medium term, it can hardly be assumed that these countries will experience rapid economic development, let alone catch up with the West. Indeed, a turning point in the CIS countries is not expected before the year 2000.

It is therefore to be supposed that the prosperity gaps among the individual countries of Central and Eastern Europe will increase further in the coming years.

²⁵ The proportion of young people in Poland is forecast to increase considerably by the year 2000. The number of 15 to 25 year olds is expected to increase by 24%, while a 50% unemployment rate in this segment of the population is considered realistic (OECD 1992c).

Isles of growth

However, there will not be uniform spatial development within the individual countries either. Individual locations or regions will undergo dynamic processes of growth to evolve into so-called isles of growth, which will contrast more and more sharply with the large number of so-called lasting crisis areas.

Such isles of growth may be characterized as follows:

Productivity trends and economic growth are well above the respective national average. They are, or will become, preferred investment locations for domestic and foreign enterprises, which will step up the pace of structural change. The importance of the services sector and of R&D activities will rise significantly. The dynamic economic and structural growth creates new jobs, stabilizing the employment situation. The rise in the level of prosperity and the standard of living of the population is disproportionate to the national average, approaching Western levels relatively quickly.

The degree of interpenetration between these isles of growth and the European Community

A recent research study²⁶ assessed the growth potential of Central and East European regions using the following indicators:

Employment in agriculture, industry and services (1990)
Unemployment rate (first and second quarter 1992)
Growth of unemployment (1990-92)
Number of tourists and hotel beds (1990)
Number of cars (1990)
Research and development centres (1990)
Number of students at university/scientific university (1990)
Number of hospital beds and doctors (1990)
Number of theatre seats (1990)
Area under forest in qm (1990)

With the aid of a cluster analysis, the following potential isles of growth were identified (see empirica, *Wirtschaftswoche* 22.5.1992):

Warszawa, Prague, Bratislava, Budapest, Bucuresti, Sofia-City.

Poznan, Lublin, Krakow, Bielsko-Biala, Katowice, Wroclawek, west Bohemia, south Bohemia, Gyor-Sopron, Veszprem, Baranya, Fejer, Csongrad, Iasi, Cluj, Timis, Lovec (see Map 30).

increases. As financial and services centres and/or as thriving locations of industry, they become increasingly important for enterprises from the Community territory both as locations of industry and as sales markets. Conversely, their exports to Western sales markets also increase. The export share of regional economic output grows rapidly due to the increasing competitiveness of their products.

These isles of growth will develop primarily in countries of relative normalization, while this type of growth process will remain the exception in other parts of Central and Eastern Europe.

As a result of these growth processes, the degree of interpenetration between these regions and EC regions will markedly increase compared to the status quo. Economic ties and infrastructural links which will be enhanced by further development will release further impetuses to growth.

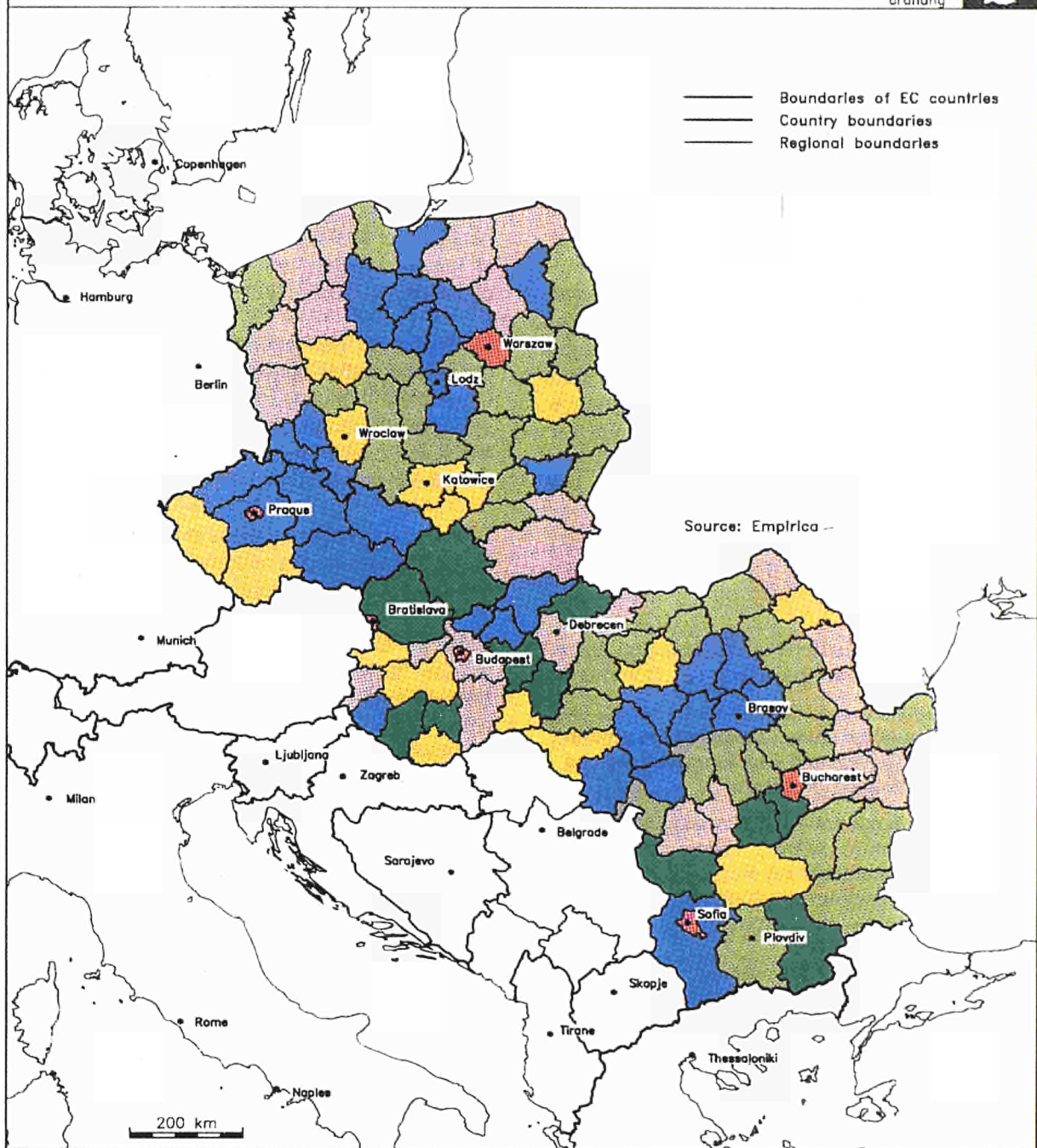
Even current problem regions in terms of structural weaknesses and environmental pollution such as Upper Silesia and North Bohemia (see Chapter 2), could experience above-average growth. Given the available resources (infrastructure, production facilities, human capital), they could become preferred locations for investment and solve their current structural and environmental problems before similar regions in Bulgaria and the CIS (for example, the Ural region, parts of the Ukraine, St. Petersburg and Nishnij Novgorod). Other parts of Central and Eastern Europe will also see the emergence of regions with a relatively favourable development scenario. The connecting axis running through Ljubljana-Celje-Maribor, and the parallel connection to the Baltic Sea coast, i.e. St. Petersburg-Riga-Kaliningrad-Gdansk, could experience relatively favourable development. Map 31 shows possible development axes in the medium term in Central and Eastern Europe (see empirica 1993a). Especially the regions situated on existing or future transit routes may receive a boost to their development. The same is true of locations on the coast, which are gaining international importance as tourist areas (for example, southern Bulgaria) or as sea ports (for example, the sea ports of Estonia, Lithuania and Romania) (see Map 31).

Lasting crisis areas

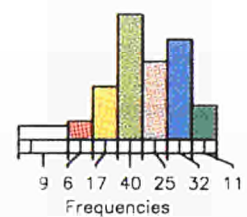
These isles or axes of growth will, in the medium term, contrast sharply with large parts of Central and Eastern Europe that are plagued by continuing, or even mounting, problems. Many of the cur-

²⁶ Empirica, *Wirtschaftswoche*, *Zukunftsstandorte in Osteuropa*, 15 October 1992.

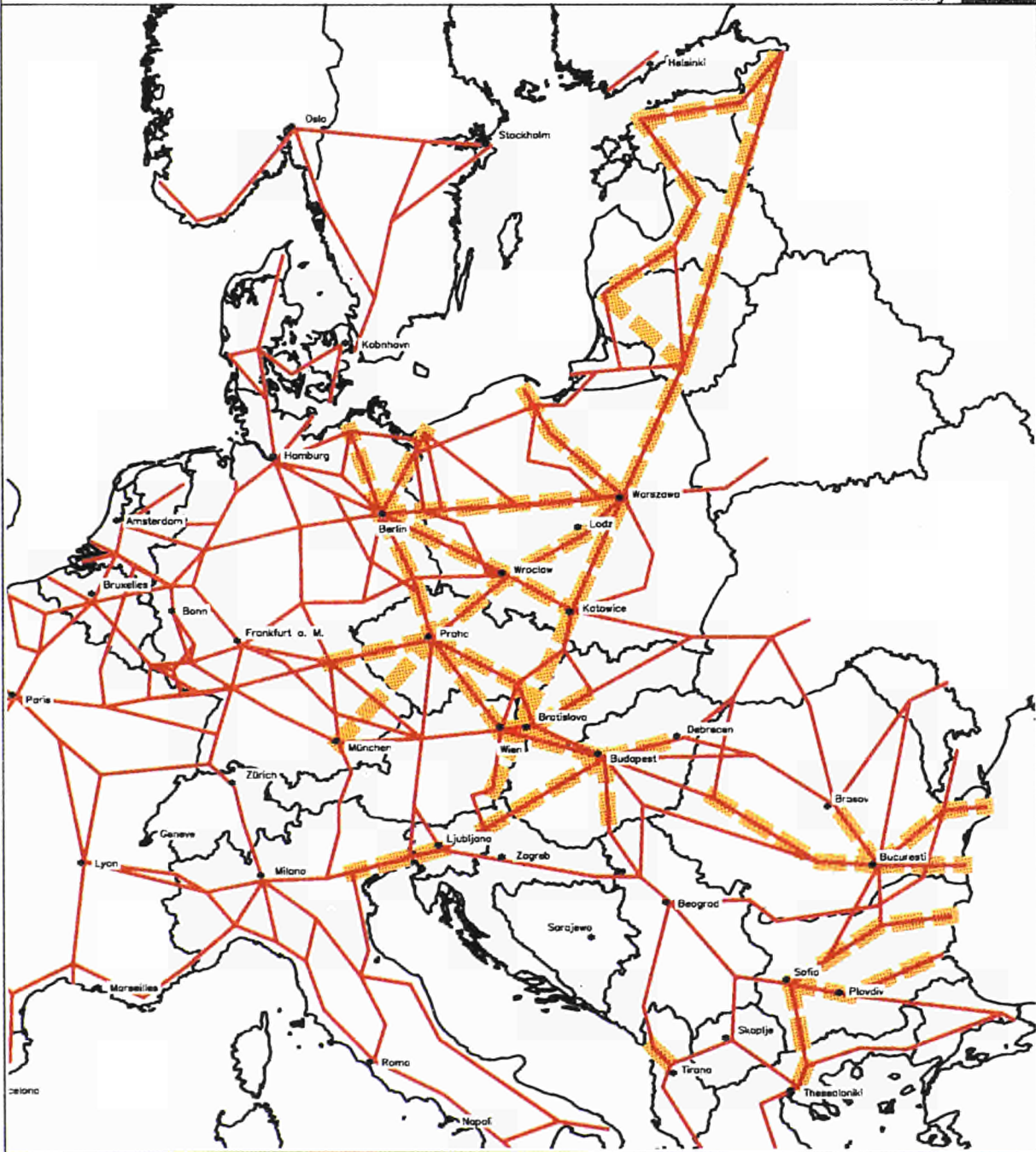
Map 30
Types of region in Central and Eastern Europe



- not included in analysis
- Metropolitan regions with central functions
- Isles of growth
- Rural regions with urbanisation trends
- Intermediate regions
- Declining industrial regions
- Agricultural regions



Map 31 Transport corridors and development axes in Central and Eastern Europe in the medium term



- Existing or planned major transport corridors
- Main development axes in Central and Eastern Europe

rent problem regions will hardly be capable of surmounting the existing development obstacles in the coming years — whether in the form of structural paralysis, infrastructural deficiencies, environmental pollution or ethnic tensions. They will stagnate at their current development levels or may even fall further behind. Alongside the lack of endogenous potential, they suffer primarily from increasing isolation: their former links to other locations within Central and Eastern Europe — which were a product of the communist division of labour and have already declined markedly in recent years — are disintegrating still further. At the same time, due to their economic weakness and/or geographic remoteness, these regions are not in a position to increase their interpenetration with Western industrialized countries by a significant degree. They are not attractive locations for investment, nor is supraregional trade growing. The regions situated on the eastern and south-eastern periphery are particularly affected. Areas of eastern Poland on the border with the former Soviet Union, south-eastern Bulgaria, and parts of Romania and Albania could become lasting crisis areas in the medium term.

On the whole, the degree of interpenetration between the lasting crisis areas and growth regions will change only gradually; it will hardly be possible to introduce sustained processes of development. The following outline shows how medium-term spatial development in Central and Eastern Europe could proceed.

Increasing regional disparities

As a consequence of the differences in the development of the various parts of Central and Eastern Europe, the existing prosperity gap will probably widen in the medium term. While the economic and structural weaknesses of the lasting crisis areas will persist and unemployment will continue to rise rapidly there, favourable conditions in the isles of growth will lead to real growth, a rise in the standard of living and stabilization of the employment situation. The following simulation illustrates the extent to which the existing regional disparities could widen: assuming that the better-off regions, with a current per capita GDP of 50% of the EC average, are capable of achieving relatively high annual growth rates of 6 to 7%, a period of 15 to 20 years would be needed in order to reach Community levels. Regions that are less well-off, on the other hand, having a current per capita GDP of 30% of the EC average and capable of achieving only relatively small-scale growth of 4 to 5% annually, would need another 50 to 60 years to achieve

such a level of prosperity, if economic adjustment can truly be spoken of when dealing with such a long period of time (see Table 17).

Regional disparities are also likely to widen in respect of unemployment in the years to come. If a 21% rise in the unemployment rate by 1994 is assumed throughout Eastern Europe, and an 18% rise in the former Soviet Union (Ghosh 1991), there will be isolated locations with insignificant unemployment (e.g. Prague), contrasting with monostructural problem regions or peripheral areas with over 40% unemployment.

Nor will spatial development in Central and Eastern Europe be uniform in terms of the development and modernization of infrastructure. In view of the enormous infrastructural and budgetary deficits in these countries (see Chapter 2), it can be assumed that infrastructure projects in the coming years will be confined to certain key corridors. The (urgently needed) extensive rebuilding of the road and rail networks is just as unlikely to take place in the foreseeable future as is the equal provision of telecommunications connections for the whole population, a general improvement of the housing situation or the construction of operational energy and water supply systems throughout Central and Eastern Europe.

Table 17: Annual growth rate in Central and Eastern Europe¹ ensuring equilization of GNP per capita between EC Countries² and Eastern Europe

Initial income in Central and Eastern Europe as percent of GDP per capita in the EC	Period of adaptation Years					
	15	20	30	40	50	60
50 %	7	6	5			
40 %		7	6	5		
30 %			7	6	5	4

¹ Excluding former Soviet Union, Albania and former Yugoslavia
² It is assumed that GDP of EC countries grow at 2.5% per annum

Source: The Economic Council, Copenhagen, June 1992, *empirica*.

Infrastructural development will be promoted predominantly in isles of growth or along potential axes of development (see Map 31), whereas only marginal funds will be earmarked for improvements in problem regions (or problem countries). There are several reasons for this:

- (i) In the short term, measures to improve infrastructure are most effective in centres of growth, since their locational appeal consequently increases at a greater rate than that of other regions.

- (ii) Centres of growth have greater short-term needs due to their more rapid economic development. The result is a greater likelihood of problems in the transport sector, housing demand rises with the increase in the standard of living and with the influx of immigrants (see above), and the demand for high-quality business premises and telecommunications rises following the increase in private enterprise and foreign investment.
- (iii) Due to the shortage of public funds in these countries, free-market principles are being applied to improve the infrastructure. For example, road construction is being supported by granting concessions to private companies; in telecommunications, scarcity-induced prices are being introduced and private suppliers licensed (see Chapter 2). It is consequently assumable that centres of economic growth will be preferred to peripheral regions as investment areas, since they can be expected to yield a quicker or higher return on investment.

A consequence of this policy approach will be that in Poland, Hungary, the Czech Republic and Slovakia in particular, the infrastructure programmes which are considered to have realistic prospects of implementation in the medium term will mean one-sided improvement of roads and railways along development axes. This will disadvantage not only those areas situated on the eastern and, in some cases, south-eastern peripheries within each of these countries. The Baltic States, the western CIS countries, Romania and Bulgaria may also lack vital links to expressways on the transit routes to the EC.

In telecommunications, as well, an 'island strategy' is taking shape, favouring metropolises over peripheral and rural areas (see *empirica* 1992b). A similar policy is being pursued in house building, medical and social care, and sewage disposal. It is hardly conceivable that the housing situation or sewage facilities will improve throughout the respective countries in the medium term, or that adequate medical and social care will be provided country-wide: in the wealthier countries, the infrastructures in conurbations will probably be upgraded first. However, it is questionable even in the case of the wealthier countries whether the infrastructural conditions in these areas can be significantly improved in the medium term. It may well be that, in view of the acute macroeconomic problems, projects like these will continue to be

neglected in favour of so-called 'productive' infrastructure measures of the government.

Widening regional disparities will pose enormous additional problems, not only for weak regions. So-called growth regions will also be adversely affected. They will become destinations of immigration and will be compelled to effect massive capital transfers in order to afford at least a minimum of social security for the affected sections of the population, and in order not to jeopardize economic and social cohesion any further.

4.2. Ongoing migration

Future migration flows

The increasing prosperity gap, growing instability in some parts of Central and Eastern Europe, and the progressive liberalization of exit laws (which are still quite restrictive in the CIS) could give rise to migratory movements in the years ahead.

Three basic patterns of migratory movements must be distinguished in this context:

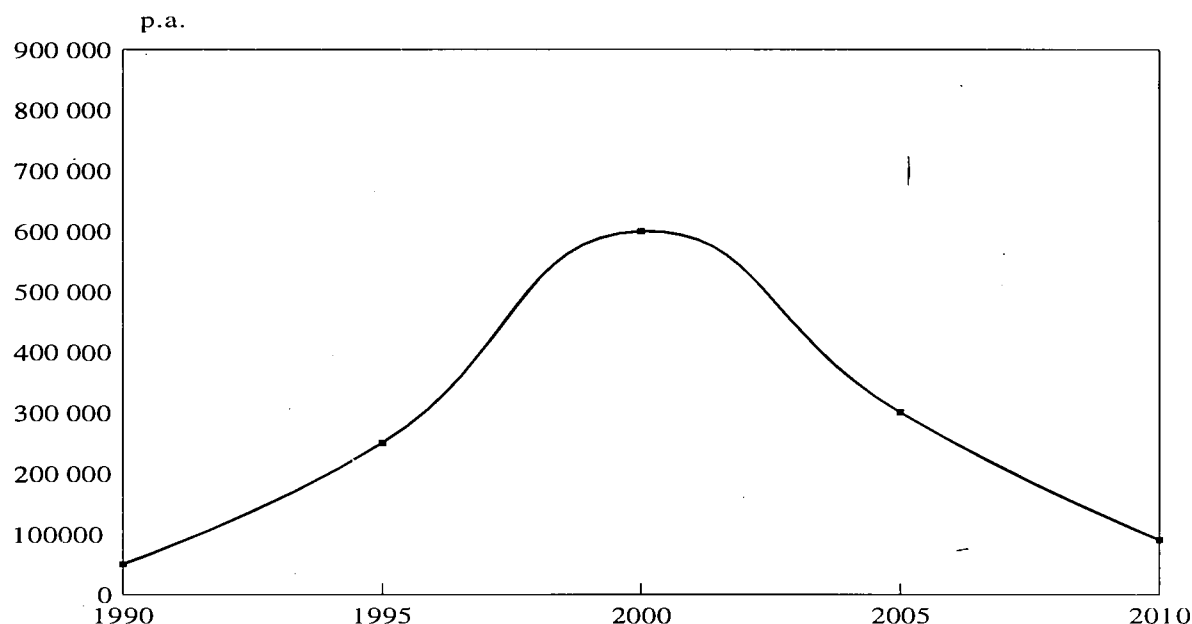
- (i) migration from countries of growing instability to countries of relative normalization;
- (ii) migration from lasting crisis areas to isles of growth;
- (iii) migration from Central and Eastern Europe to Western Europe, to Israel and the USA.

In the next 10 to 15 years the greatest number of emigrants will come from the territory of the former Soviet Union. The reasons for this include the poor economic conditions, the dramatic rise in unemployment and ongoing or intensifying ethnic conflicts. It is, at present, difficult to predict the probable scale of future emigration from the former Soviet Union. Forecasts range from between 400 000 and 500 000 emigrants per year to 48 million emigrants by the year 2000.

Even without more extreme conflicts in the western parts of the former Soviet Union, between 4 to 6 million people might emigrate from the former Soviet Union by the year 2010 (see Ghosh 1991). Hence an annual increase in the rate of migration is to be expected until the end of the 1990s, while thereafter the annual volume of emigration should decrease. The synopsis depicted in Figure 21 illustrates the possible development of migration.

Figure 21: Migration flows from the Republics of the former Soviet Union (scenario)

Ghosh prognosis



Source: Empirica.

Assuming a total of 6 million emigrants from the former Soviet Union, around 3 million of them would probably go to the EC, approximately 1 million to Israel and 2 million to other Central and Eastern European countries (mainly Hungary, Poland, the Czech Republic and Slovakia) on a permanent or temporary basis. The 3 million migrants entering the EC will probably include around 1.2 million ethnic Germans, and approximately 150 000 Pontii of Greek origin: i.e. half of all ethnic Germans or ethnic Greeks estimated to be living in the former Soviet Union will emigrate.²⁷

As regards migration from Central and Eastern European countries (excluding the former Soviet Union and former Yugoslavia), it is estimated that by the year 2010 around 1.75 million migrants from there will enter the EC, provided that present ethnic tensions in some parts of Central and Eastern Europe do not intensify or spread, triggering an unpredictable mass exodus. This estimate includes approximately 250 000 ethnic Germans and 150 000 Greeks. Of the remaining 1.35 million potential migrants around one third would probably come from Romania, one quarter from Bulgaria and Poland respectively and only a small proportion from Hungary, the Czech Republic and Slovakia. The figures for Romania include roughly

²⁷ Some experts even put the migration potential at 80 to 90%. The following model calculation thus outlines a moderate scenario.

200 000 ethnic Germans living especially in Transylvania who could resettle in Germany in the years to come.

One should note that the migratory flow to the West is likely to show structural changes in the medium term. For example, emigration from Poland with a peak of 400 000 emigrants (250 000 ethnic Germans) in 1989 is likely to fall off as a result of improving socio-economic conditions in the country and of the gradual drying-up of the stream of ethnic Germans, but instead there will increasingly be other forms of migration.²⁸ Structural change is also likely to affect migration from Hungary and the Czech Republic and Slovakia: there could be relatively balanced flows of migrants between these countries and the EC Member States (including temporary migration from the EC in the framework of know-how transfers), and further positive development could slow down the East-West brain drain.

Migration from the countries of Central and Eastern Europe is not only directed towards Western countries. The stream of ethnic Hungarians from Romania to Hungary and the southern border

²⁸ Emigration declines as the possibility of temporary work contracts abroad is opened as an interesting alternative. Some of these so-called contract workers will decide to remain permanently in their host country, though.

areas will continue for an extended period of time. From Bulgaria many migrants will move to the more affluent countries of Central and Eastern Europe and to Turkey. And if ethnic tensions should mount, or local conflicts spread to encompass larger regions there may be a flood of refugees from the Baltic States to Poland, from Moldova to Romania and from Kosovo to Albania. Even an intensification of nationalist trends in Slovakia could trigger a mass exodus of the Czech minority, as well as of the Hungarian minority living in southern Slovakia.

Apart from economic problems and ethnic tensions, catastrophic environmental conditions, too, can trigger in people the decision to migrate as is shown by the legions of Czechs and Slovaks returning from so-called ecological disaster zones in Romania and the Chernobyl region.

These trends also appear within the borders of individual countries: in the near future, more and more people may decide to desert lasting crisis areas, in which structural and environmental problems are often compounded, to settle in the isles of growth, especially in the big cities. At the same time, migration will increase from eastern peripheries (for example, east Polish border areas) to the western parts of the country, especially wherever hidden but persistent unemployment or underemployment in the agricultural sector comes to light.

The migratory movements that are to be expected will confront the wealthier countries, and also the immigrants' countries of origin, with enormous problems in the future: the influx of economic immigrants will cause additional problems on the employment and housing markets, necessitating more restrictive immigration legislation. The western CIS countries, Romania and Albania, on the other hand, will face the continuing problem of a brain drain, which could cause a shortage of qualified professionals, as was the case in the new German *Länder* after the fall of the Berlin Wall and the opening of the internal German border.

Spatial impact on EC regions

Any forecasts concerning the direction of future migratory flows are just as uncertain as those on the volume of migration. The following simulation starts from the assumption that those countries and regions which had been preferred destinations of migrants in the past, will remain so also in the next 10 to 15 years. The underlying idea is that future immigrants from Central and Eastern

Europe will choose such countries because of already existing personal contacts, and/or ethnic and cultural links. Consequently, if the distribution of immigrants from the Baltic States and the republics of the former Soviet Union resident in each EC Member State in 1990 is taken as a basis for future migratory flows, most of the 1.65 million potential migrants from the former Soviet Union will enter the United Kingdom (34%), Germany (28%), Italy (15.9%), France (10.5%) and Greece (7.4%). Only 4.2% of migrants will go to the remaining EC Member States.²⁹

As regards emigrants from Central and Eastern Europe (excluding the former Soviet Union and former Yugoslavia), for them Germany will be the number one destination, attracting around 64% of all migrants, followed by France (11.9%), the United Kingdom (8.4%), Italy (7.1%) and Greece (4.6%). Around 4% of emigrants will be distributed among the remaining EC countries.

These figures are meant only as a rough projection of potential migratory flows in the future, based on the assumption that the motives of migrants and/or the conditions in the places of destination and entry provisions remain the same. If more stringent immigration regulations, as are being discussed, were enforced in some West European countries, or common EC entry regulations, let alone immigration quotas, were introduced, this would profoundly affect both the size and destination of the migratory flows. However, the effects are hardly predictable realistically at this stage.

Maps 32 and 33 illustrate the likely migration flows from the republics of the former Soviet Union as well as from Central and Eastern Europe into the EC countries up to the year 2010.

A further quantitative breakdown of these migration flows into the EC, for instance down to NUTS level II, is not possible owing to a lack of relevant statistical data on migration. Assuming, however, that the past pattern of spatial migration does not fundamentally change, the classical destinations of immigration will witness above-average population growth due to immigration from the former Soviet Union and Central and Eastern Europe. Accordingly, the prosperous regions, large cities

²⁹ The figure of 1.65 million does not include ethnic Germans (1.2 million) and ethnic Greeks (150 000) whose destination is certain anyway – Germany and Greece. It should be also noted that the scale of immigration from Central and Eastern Europe is very low in some countries compared to the number of immigrants from other parts of the world. For example, in 1990 approximately 45 000 immigrants entered the United Kingdom from Asia, compared to around 1 000 from Central and Eastern Europe.

and conurbations will experience most immigration, whereas rural-peripheral regions will register scarcely any migration-induced population growth.

According to the immigration statistics of the Federal Republic of Germany which give relatively detailed data at regional level, the favourite destinations are likely to be Berlin, Stuttgart, Munich and their environs and some areas of North Rhine-Westphalia. The statistics show, moreover, that there is a distinct preference for regions in southern Germany over northern Germany.³⁰ In Greece it is likely that immigrants will continue to settle preferably in Thessaloniki and Athens and their environs as well as in the regions bordering on Albania (Epirus and West Macedonia) (see KEPE 1992).

4.3. Increasing transit and traffic flows and impact on transit areas

Increasing transit and traffic flows between Central and Eastern Europe and the Community

It is to be assumed that the growing degree of interpenetration between Western and Eastern Europe will lead to considerably increased transport and traffic flows — i.e. increased goods and passenger transport, which is already visible.

In the past the volume of transport between the EC and Central and Eastern Europe was of minor significance compared to the total traffic/transport flows in the Community. Still, in 1991 only six million tons were transported on the road from the EC to Central and Eastern Europe which was equivalent to just under one fifth of the volume transported from the EC to the EFTA countries which totalled 30.5 million tons in the same year (Eurostat 1993).

However, since the beginning of the reform processes in Central and Eastern Europe, the mutual exchange of goods and thus the volume of transport have visibly expanded. In the first half of 1992 some 3.6 million tons of goods were transported on the road from the EC into the countries of Central and Eastern Europe, which is an increase of about 19% over the first half of 1991.

³⁰ These figures do not include ethnic Germans (*Aussiedler*) nor asylum-seekers since the distributive formula applied to them is the area of the communes.

Transport flows on the rail, road, sea and inland waterways run between relatively few countries.

As regards road transport, the main partners, accounting for some 57% of all EC exports, are: Germany-Poland, Germany-the Czech Republic and Slovakia, Germany-CIS, Germany-Hungary, Netherlands-Poland and Italy-CIS, while for imports the main partners are the Czech Republic and Slovakia-Germany and Poland-Germany, accounting for approximately 64% of total EC imports (see Table 18).

In rail transport, the main partners (for about 79% of all EC exports) are Germany-the Czech Republic and Slovakia, Germany-CIS and Germany-Poland, as well as CIS-Italy, the Czech Republic and Slovakia-Germany and Poland-Germany (for some 78% of total EC imports).³¹

It is no less difficult to forecast the possible future shifts of traffic flows than to assess the future economic development in Central and Eastern Europe or the future trade exchanges between East and West. There is a variety of sharply differing forecasts.

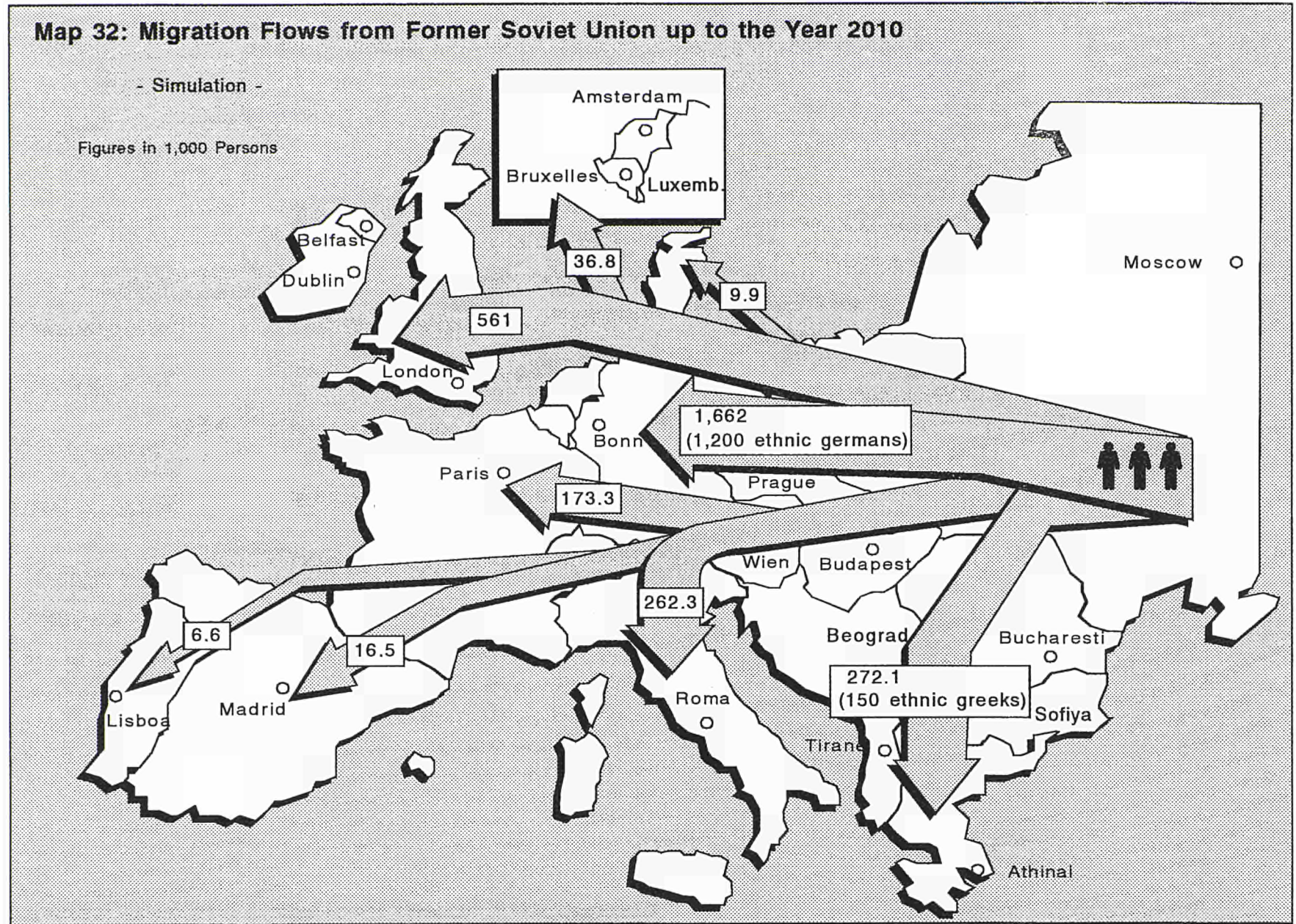
The latest estimates of the German building industry, for instance, forecast that the volume of traffic between Germany and the countries of Central and Eastern Europe alone will increase eight-fold by the year 2010 compared to 1985 and that transit traffic through Germany (resulting from trade between other EC Member States and Central and Eastern Europe) will increase twelve-fold by 2010 as against 1985 (see *Handelsblatt* 26.10.1992).

According to COWI-Consult estimates, based on a 'moderate economic recovery scenario'³² in the countries of Central and Eastern Europe, freight transport will again increase 2.5-fold in the next 10 to 15 years and passenger traffic³³ will increase four-fold as against 1992.

³¹ Transport flows via maritime and inland waterways, too — due to the natural and geographic conditions — run between a few countries only. The vast majority of all shipments go from Poland or the CIS to Germany. As regards maritime shipping, the major partners are CIS-I, CIS-F, CIS-NL and CIS-UK (for imports into the EC) and D-CIS, F-CIS, I-CIS, UK-CIS and UK-PI for EC exports). The Annex (Tables 4 and 5) gives figures on the relative importance of the countries concerned. Since the greatest increase is expected in road and rail transport, navigation is only considered in the following simulation and analysis, when it will indirectly influence transport flows, road and rail corridors.

³² See COWI Consult 1991, assuming a growth rate of 0-5% depending on the country from 1993.

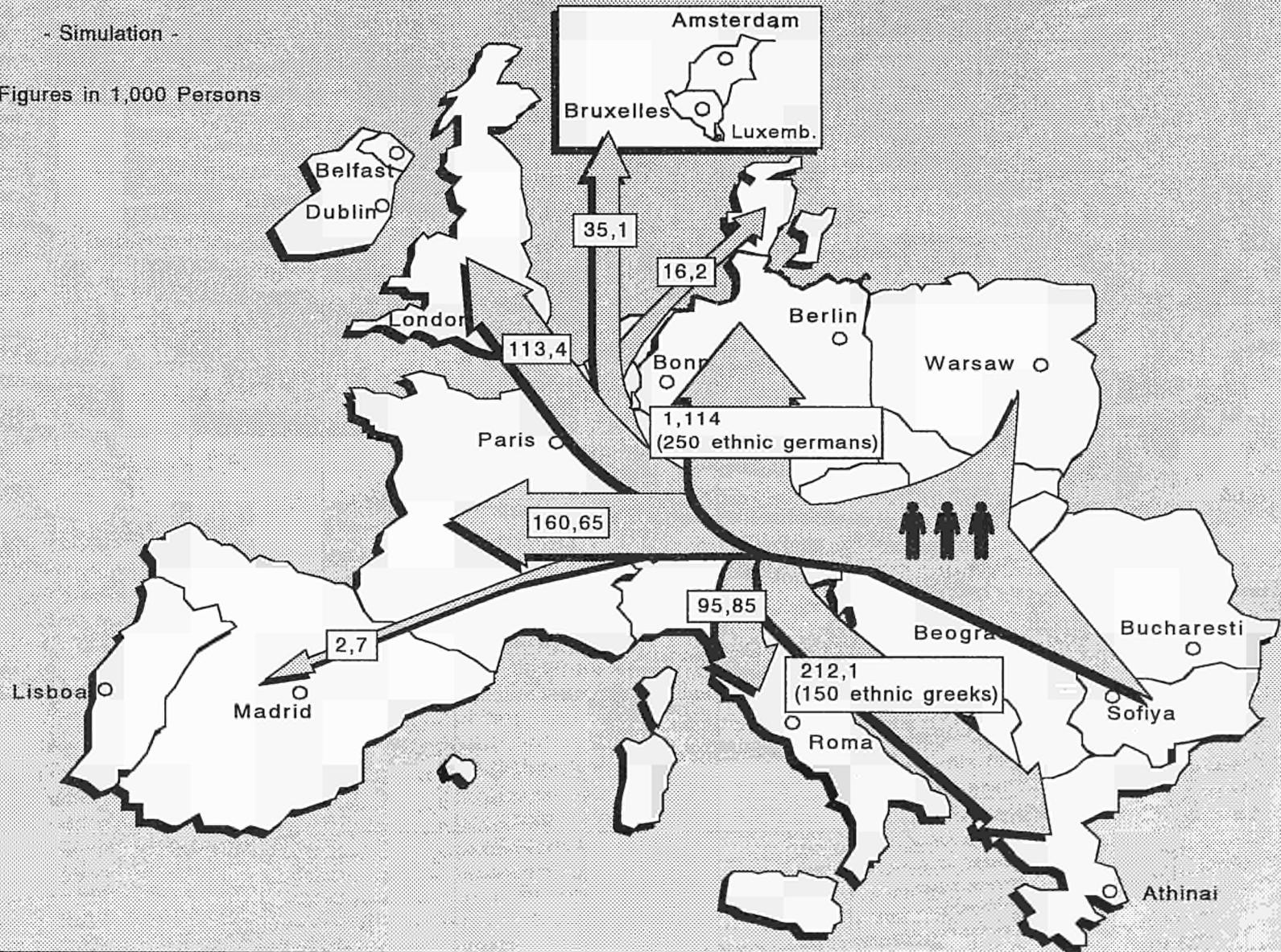
³³ The following simulation only includes goods traffic flows on rail and road since detailed data on passenger flows are not available for all countries. It can be assumed, however, that the increasing passenger flows (on road and rail) will add substantially to the traffic volume.



Map 33: Migration Flows from Central and Eastern Europe up to Year 2010

- Simulation -

Figures in 1,000 Persons



Considering the rise in trade, transport and traffic volumes between the EC and the countries of Central and Eastern Europe since the beginning of the reform processes and considering the assumptions concerning the likely future development path in the individual CEEC (made above), the most likely assumptions are that:

- (i) transport flows on the road will increase five-fold up to 2010 against the first half of 1992 reaching approximately 18 million tonnes (exports from the EC to CEEC) and 3.5-fold reaching 35 million tonnes (imports from CEEC to the EC) in 2010; and that
- (ii) transport flows by rail will rise four-fold (exports from the EC to the CEEC) to approximately 8.4 million tonnes and 2.5-fold (imports from CEEC to the EC) to approximately 36.75 million tonnes by 2010.

Table 18: Flows of transport between the EC countries and the countries of Central and Eastern Europe on road and rail, first half 1992

(excluding former Yugoslavia and GDR; in 1 000 tonnes)

Road

(excluding former Yugoslavia and GDR; in 1 000 tonnes)

From EC countries to Central and Eastern European countries by road
(Total: approximately 3.8 million t)

	PI	CR/S	H	SU*	R	B
DK	38.7	7.5	3.8	3.6	0.9	1.0
UK	0.0	0.0	0.0	0.0	0.0	0.0
B/L	80.3	30.2	31.1	40.0	9.7	3.7
NL	244.5	84.0	56.0	63.5	14.2	7.7
D	575.3	412.1	271.1	313.8	58.0	37.2
F	91.4	53.4	37.7	73.8	18.3	9.5
I	96.0	77.0	85.5	238.5	33.8	39.4
E	64.4	20.3	13.0	10.9	2.0	0.8
P	0.2	0.4	0.3	0.2	0.0	0.0
GR	56.3	35.8	19.8	12.8	30.8	55.0
Total	1 247.1	720.7	518.3	757.1	167.7	154.3

From Central and Eastern European countries to EC countries by road
(Total: approximately 10.0 million t)

	PI	CR/S	H	SU*	R	B
DK	96.5	24.2	7.9	3.2	0.3	2.1
UK	5.8	0.0	0.0	0.2	0.0	-
B/L	115.7	76.9	46.6	72.0	5.6	7.4
NL	164.5	113.8	53.5	47.5	5.8	6.4
D	2 893.8	3 470.3	493.1	666.3	82.7	61.7
F	128.6	106.8	46.1	70.4	12.3	10.5
I	180.0	200.3	268.9	169.3	30.2	35.3
E	19.1	30.3	9.2	13.4	2.6	2.5
P	1.0	2.7	0.8	2.3	0.2	0.4
GR	11.5	16.0	21.6	10.9	9.0	84.2
Total	3 616.5	4 041.3	947.7	1 055.5	148.7	210.5

* Including Baltic States and CIS countries.

Rail

(excluding former Yugoslavia and GDR; in 1 000 tonnes)

From EC countries to Central and Eastern European countries by rail
(Total: approximately 2.1 million t)

	PI	CR/S	H	SU*	R	B
DK	1.1	0.4	0.1	-	0.0	0.0
UK	-	-	-	-	-	-
B/L	1.3	1.5	2.1	17.9	8.7	0.6
NL	0.7	0.7	4.3	12.4	10.3	0.0
D	218.7	787.7	72.2	648.9	40.0	5.3
F	4.5	16.1	5.3	54.2	8.5	0.9
I	16.2	26.6	12.3	29.4	7.5	1.6
E	2.2	1.8	0.6	1.7	0.0	0.7
P	-	0.0	-	-	-	-
GR	4.6	2.9	5.8	1.7	13.8	8.4
Total	249.3	837.7	102.7	766.2	88.8	17.5

From Central and Eastern European countries to EC countries by rail
(Total: approximately 14.7 million t)

	PI	CR/S	H	SU*	R	B
DK	0.1	5.1	3.5	-	0.0	-
UK	-	-	-	-	-	-
B/L	7.4	9.6	0.2	5.9	0.2	-
NL	2.7	4.3	1.3	0.1	0.1	-
D	2 854.3	3 570.3	104.5	356.7	55.8	7.6
F	29.7	133.2	12.7	22.0	18.9	2.0
I	268.4	851.2	790.6	5,061.2	34.4	6.0
E	0.1	2.5	1.7	0.1	0.1	-
P	0.0	0.3	0.0	0.0	0.5	-
GR	3.2	33.3	4.0	1.8	1.8	88.1
Total	3 165.9	4 609.8	918.5	5,447.8	111.8	103.7

* Including Baltic States and CIS countries

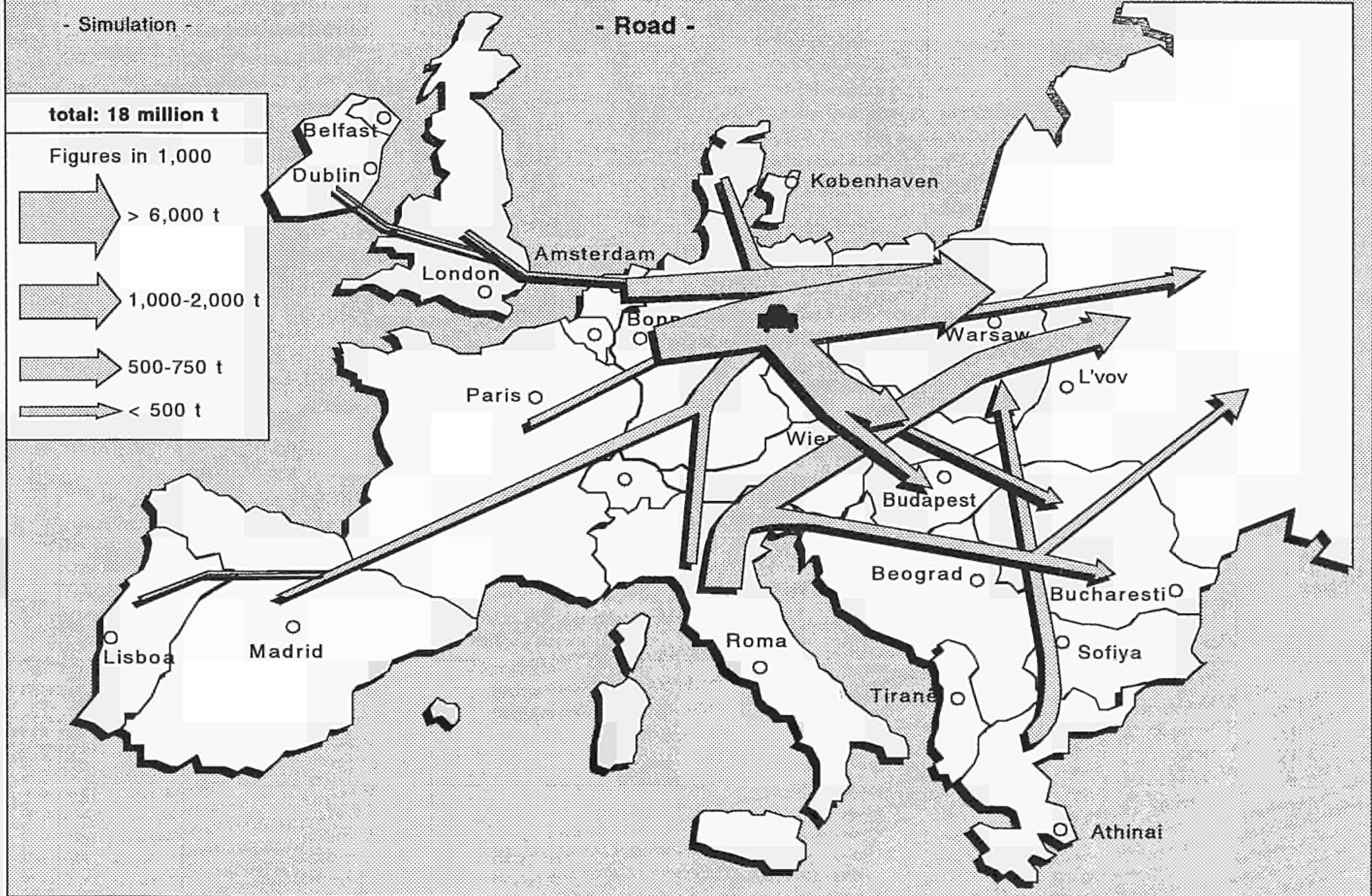
Source: Eurostat 1993.

The underlying assumptions are that:

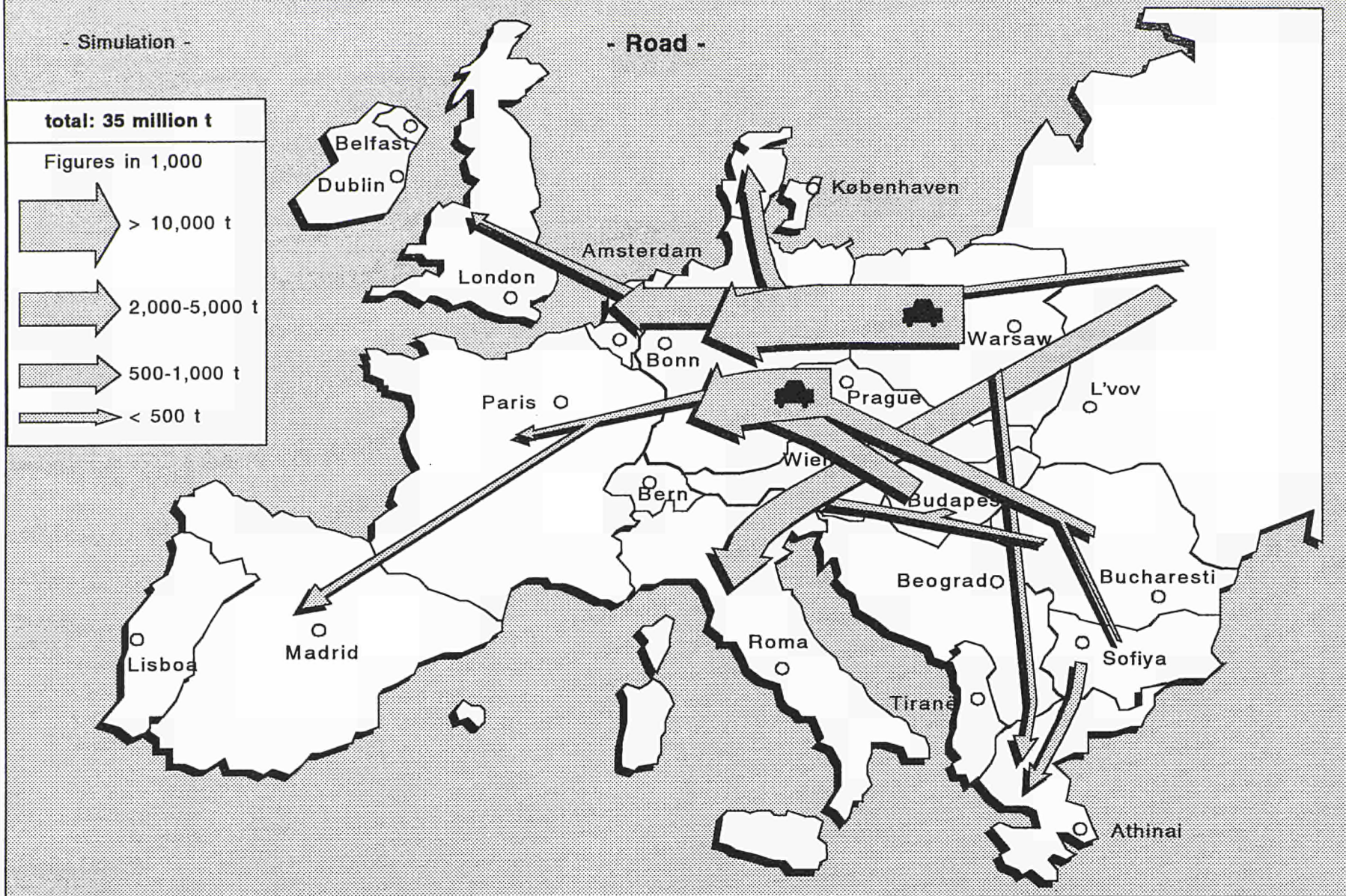
- (i) transportation will in part shift from rail to road;
- (ii) the share of heavy freight transport (raw materials etc.) in transport flows between the EC and the supplier countries in Central and Eastern Europe will decrease or at least stop increasing as the latter's economic and technological development progresses (see also coal and steel agreement). It is therefore assumed that rail transport from the countries of Central and Eastern Europe will increase very slightly, whereas the volume of transport from the EC to the CEEC (by both rail and road) will show a considerable increase. However, in terms of value transport from the countries of Central and Eastern Europe will also increase substantially.

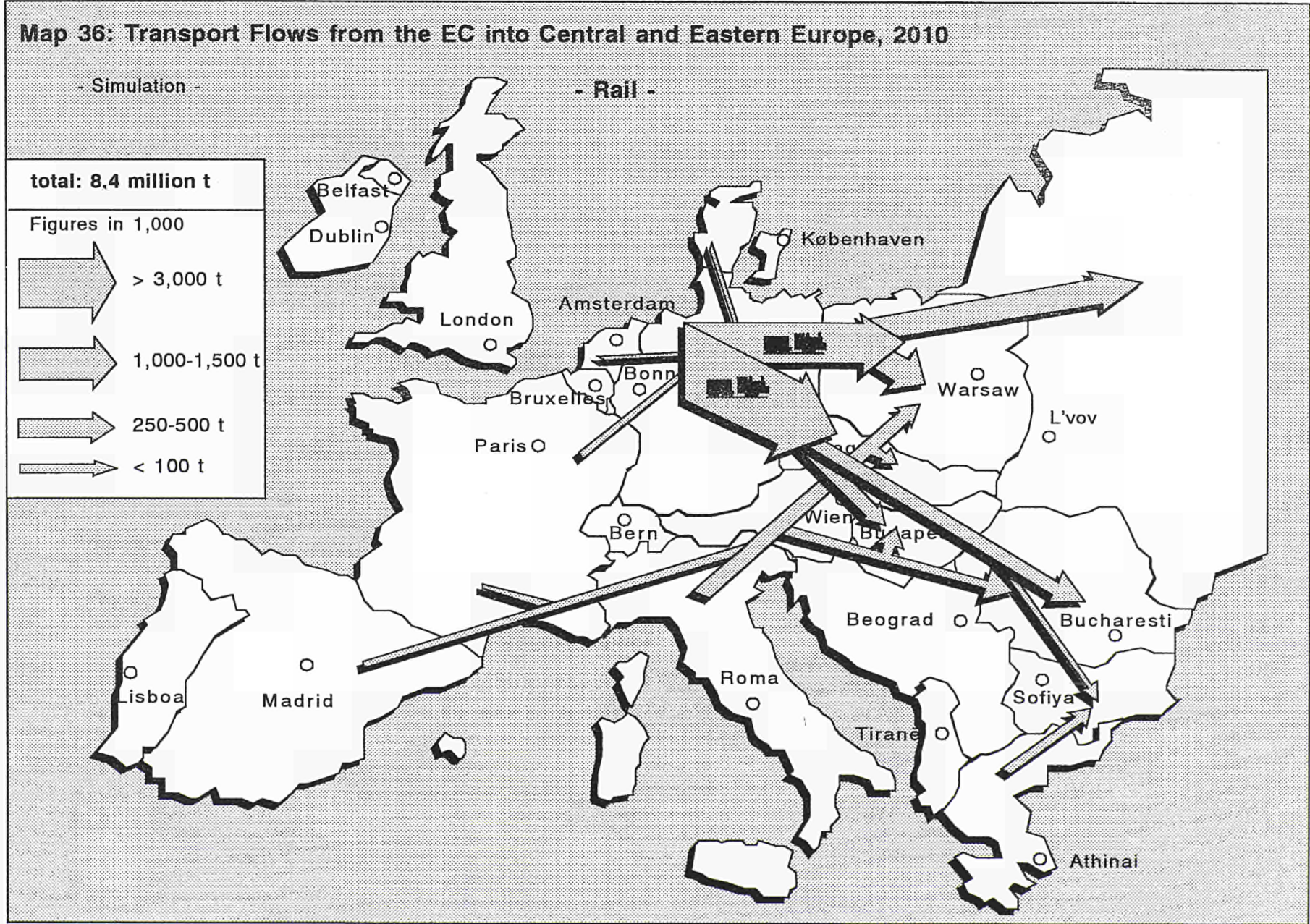
Assuming that the shares of the currently major partner countries do not fundamentally change up to the year 2010, then the greatest increase in

Map 34: Transport Flows from the EC into Central and Eastern Europe, 2010

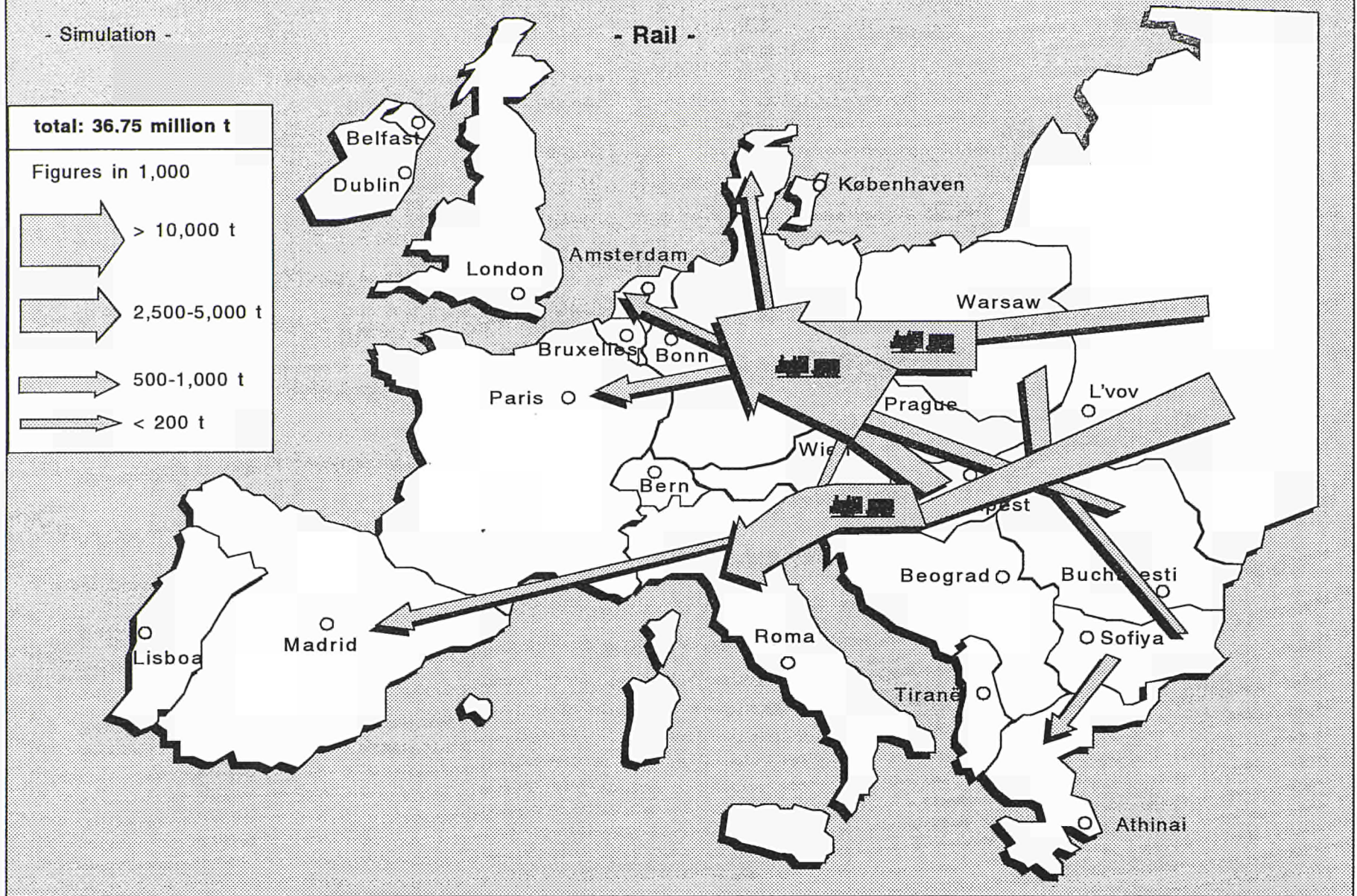


Map 35: Transport Flows from Central and Eastern Europe into the EC, 2010





Map 37: Transport Flows from Central and Eastern Europe into the EC, 2010



transport and transit traffic will be seen on the east-west transversals (roads) in the north and the east-west transversals (rail) in the centre of the Community territory as well as on the east-west transversals through Poland and the north/west-south/east transversals through the Czech Republic and Slovakia and Hungary, as Maps 34 to 37 illustrate.

In addition to the transport flows generated by the anticipated increase in transport volumes, passenger and tourist flows between East and West will also expand (four-fold according to estimates, see also COWI-Consult 1991). Here too the countries of Central and Eastern Europe will see a shift of traffic from rail to road, since motorization levels will increase as living standards improve and since travelling habits will become similar to those in the West (preference for private transport and business travelling by air). Since at present most of the commuter and tourist flows are between neighbouring countries (D-PL, D-CR, GR-BG, I-SLO), any increase in these flows puts an additional strain on the main corridors and on the border-crossing points (and on the respective border region).

Spatial impact of future transit and traffic flows on Central and East European countries

On the basis of the future transport and traffic flows assumed, Poland's importance as a transit country will continue greatly to increase.

Poland is the most important transit country for the northern EC countries (Denmark, the United Kingdom, the Benelux countries and the northern German *Länder*) for overland freight transport to the Baltic States, Russia, Belarus and the Ukraine and for imports from these countries into the countries of the Community.

Poland may become the most important transit country for Scandinavian transports, especially from Finland and the north-eastern parts of Sweden, to the Balkan countries, and to Central and Western Europe, especially once the Via Baltica (motorway thoroughfare from Tallinn via Warsaw to Western Europe) is completed, which will reduce present travel time and cost in road transport.

Major transit routes through Poland in the medium term

East-west corridors:
 Berlin)-Poznan-Warsaw-(Minsk-Moscow), (Berlin)-Poznan-Warsaw-(Kiev), (Dresden)-Wroclaw-Katowice-(L'vov);

North-east/south-west corridors:
 (Minsk)-Warsaw-(Prague), (St Petersburg-Vilna)-Warsaw, (Riga)-Warsaw

North-south corridor:
 Warsaw-Katowice-(Brno)-Vienna

Moreover, the corridors to the major Baltic seaports of Poland, Szczecin/Swinoujscie and Gdansk/Gdynia, will be frequented much more than up to now, especially once the projects of expanding and modernizing these harbour complexes have been realized (see also Chapter 2), namely the corridors of Gdansk-Warsaw, Gdansk-Poznan, Szczecin-Poznan and Szczecin-Wroclaw.

In the Czech Republic and Slovakia the major transport corridors will also be strongly affected by the growing traffic and transit flows.

Major transit routes through the Czech Republic and Slovakia in the medium term

South-west/north-east axes:
 (Nuremberg)-Pilsen-Prague-(Wroclaw) and (Katowice)-Brno-(Vienna);

North-south axis:
 (Berlin-Dresden)-Prague-(Vienna);

North-west/south-east axis:
 Prague-Brno-Bratislava-(Budapest).

Hungary will have to fill an ever more important transit function for transport flows between south-west Europe and the western CIS countries as well as between the Balkan States and Western Europe; the following corridors are affected most:

Major transit routes through Hungary in the medium term

North-west/south-east corridors:

(Vienna-Bratislava)-Gyor-Budapest-Szeged-(Belgrade) and Budapest-Szeged-(Timisoara-Sofia)

South-west/north-east corridor:

from Croatia to the Ukraine (Zagreb)-Budapest-(L'vov).

Since the Yugoslavian crisis Hungary has become an important transit country also for transport flows between Greece and its EC partners, the most affected routes being Thessaloniki-Sofia-Belgrade-Budapest and Thessaloniki-Sofia-Timisoara (Romania)-Budapest. Whether these routes will be used as an alternative to the traditional ones through former Yugoslavia in the medium term, depends primarily on the political developments in the latter. There is a good chance though, even the situation in former Yugoslavia should stabilize (and the EC lifts the trade embargo), provided that the currently inefficient corridors through Bulgaria and Romania are considerably improved, since transit through the individual countries and Republics of former Yugoslavia becomes more expensive (transport costs for a loaded truck of a gross-weight of 38 tones for the route Evzoni-Munich have risen from ECU 1 167.50 (traditional route through former Yugoslavia) to approximately ECU 1 537.50 (new route through former Yugoslavia, see KEPE 1992).

In Bulgaria the following corridors will remain or become the most important: (Thessaloniki)-Sofia-(Belgrade) and Sofia-(Bucharest) and – provided that the centres on the Black Sea begin to play a significant role – the route linking Sofia to Burgas and Varna, which is planned to be developed into a ring motorway by 2010 (see Chapter 2).

Romania, due to its geographic location and topographic conditions, will see growing traffic flows run mostly west-eastward, provided that transit traffic to the Ukraine increases. The routes of (Belgrade)-Bucharest-(Kiev) and (Budapest)-Bucharest-(Odessa) and the projected motorway from Bucharest to Constanta represent major traffic axes in the medium term.

Apart from the road and rail corridors, the inland waterways in Central and Eastern Europe, of which only relatively little use has been made to date, might become more important. Hungary, for instance, is planning to award concessions in inland navigation which are deemed to help finance the modernization and/or reopening of six

ports (Györ, Budapest-Csepel, Dunaujvaros, Szekszard, Baja and Szeged) and to make freight transport via the Danube more attractive. Other countries of Central and Eastern Europe, too, are endeavouring to raise the attractiveness of inland navigation (through privatizing the State-owned shipping companies, concession contracts and financial assistance for the modernization of ports). It is to be expected that the sections of the Danube-Black Sea Canal (in Bulgaria, Romania and the Slovakia) and the Vistula and Oder rivers in Poland will thus gain importance.

Likely impact on border and transit areas in Central and Eastern Europe

Some of the corridors are planned to be extended and modernized in the coming years (see Chapter 2, Maps 11a, b and c). The locations on these newly built or modernized corridors will greatly profit from the improved infrastructural link-up. Considering that deficient and inefficient transport networks are regarded as the greatest obstacles to growth, the (new) transit regions may indeed experience decisive growth impetuses. It is hence not surprising that experts mostly see future growth axes in the countries of Central and Eastern Europe along these corridors (see Chapter 4.1 and empirica 1993a).

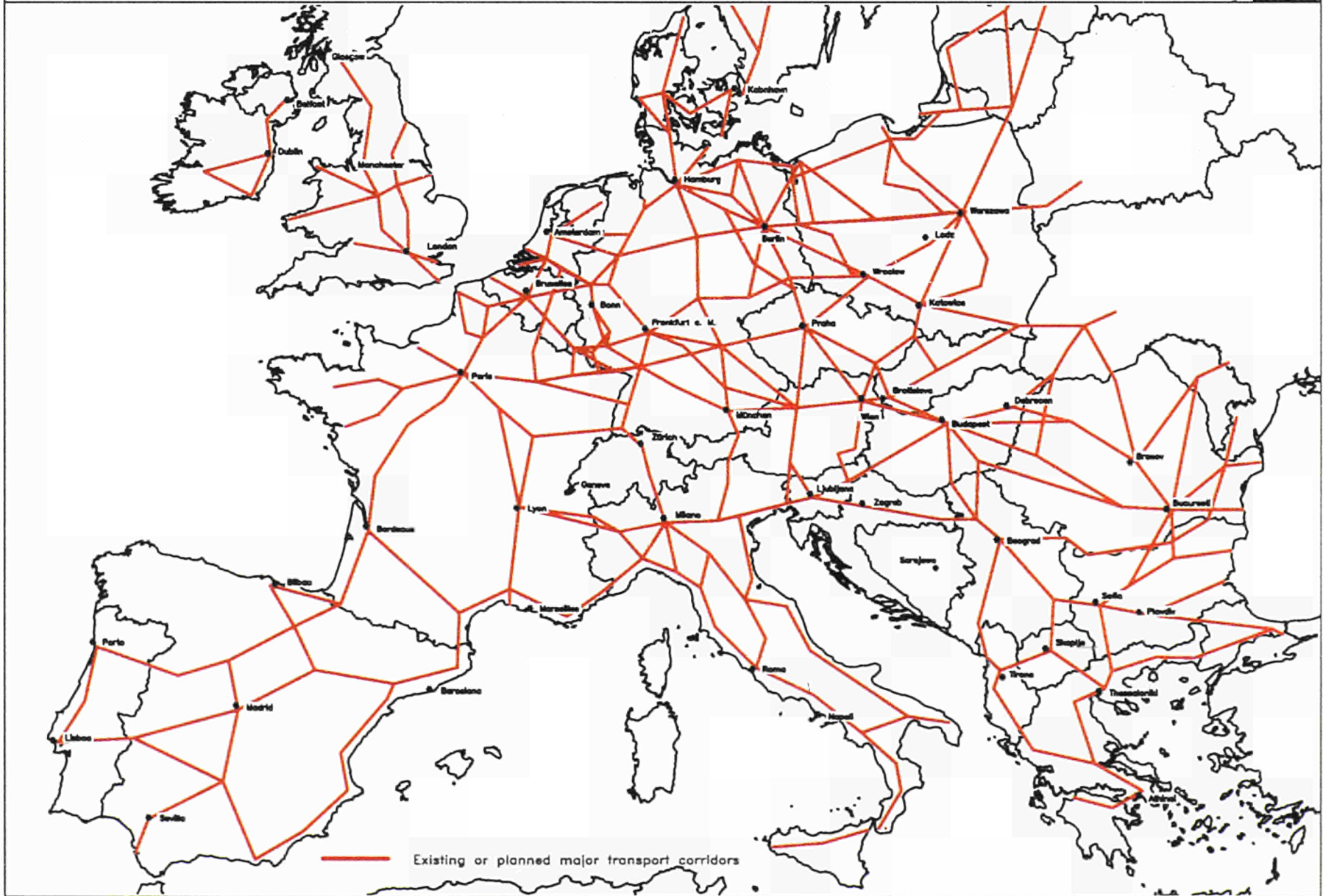
The growing traffic will cause considerable (additional) bottlenecks at the border crossing points not only into the Community or into Austria but also between the Eastern countries themselves (e.g. at Brest, Bialystok, Ruse, Vidin, Arad, Oradea, Szeged, Komorn, Kosice, Eger). Towns which are situated at traffic junctions and for which no bypass motorways are planned (unlike Budapest which will soon have a ring motorway) will be heavily affected by the through-traffic (on top of the inner city traffic which is also increasing).

Spatial impact of future transit and traffic flows on the community

Assuming that the transport volume with Central and Eastern Europe rises 5-fold (exports from the EC) and 4-fold (imports into the EC) by road and 3.5-fold (exports from the EC) and 2.5-fold (imports to the EC) by rail by 2010 (see above), the significance of transport flows between the EC and Central and Eastern Europe will increase considerably. At present EC exports by road amount to 20% of EC-EFTA transport flows, but would rise to 60% on the above assumptions and assuming that the present volume of EC-EFTA transport flows remain constant. This would doubtlessly

Map 38

Transport corridors in the European Community



have a considerable impact on some particular East-West corridors.

The map on p.128 shows the assumedly most important corridors in the Community territory in the medium term (Map 38).

Heavily used transport corridors in the Community territory in the medium term

The most important road and rail routes for Denmark, the United Kingdom and the northern German *Länder* will be Hamburg-Berlin-Warsaw, or Berlin-Dresden-Prague.

For the Benelux countries, parts of France and the central parts of Germany, the most important axes will be the Ruhr motorway to Berlin-Warsaw, Dresden-Warsaw and Dresden-Prague-Budapest.

For Spain, Portugal as well as southern France and southern Germany the major transport corridors will be Stuttgart-Nuremberg-Prague-Warsaw and Nuremberg-Prague or, via Austria, Vienna-Győr-Budapest, Munich-Vienna-Győr-Budapest (Graz-Maribor) as well as Lyon-Milan-Ljubljana-Budapest.

Italy's most important transport routes will run from Milano through Switzerland/Austria to Munich and Prague or to Vienna-Bratislava-Budapest as well as from Venezia via Vienna-Bratislava to Warsaw or Budapest and from Venezia via Gorizia-Ljubljana to Belgrade.

The most important corridors for Greek transports to and from Central and Eastern Europe (and to the other EC countries) will be Athens-Thessaloniki-Sofia and Igoumentisa-Thessaloniki-Sofia (or Skopje) or across the Greek Sea via the ports of Kavala, Alexandroupolis, Thessaloniki.

Likely bottlenecks and spatial impact on the external border areas and transit areas in the Community

At present there are considerable bottlenecks on the transversals into the new German *Länder*, which will be relieved, however, once the construction projects in the new *Länder* within the framework of the development programme 'German Unification' have been carried out.³⁴ The steady increase in transborder traffic will lead to

³⁴ There are plans for 17 projects in the framework of the programme 'German Unification' for extending and building roads, which is expected to ease the pressure on the East-West transversals already in the coming 3 to 5 years. The most important routes include Hannover-Berlin, Kassel-Erfurt-Chemnitz-Dresden, Lübeck-Szczecin, Göttingen-Halle/Leipzig and Nuremberg-Leipzig-Berlin (road connections) as well as Hamburg-Berlin, Hannover-Berlin, Göttingen-Berlin, Nuremberg-Leipzig-Dresden and Leipzig-Berlin (rail connections) (see Part II of the study).

considerable bottlenecks especially at the crossing points between Germany and Poland, Germany and the Czech Republic as well as between Italy and Slovenia and Greece and Bulgaria.

Crossing points suffering considerable bottlenecks in the medium term

Frankfurt/Oder, Guben, Görlitz, Zittau, Bad Schandau, Schirnding, Furth im Wald, Bayerisch Eisenstein, Trieste-Ljubljana as well as the Greek crossing points on the border to Bulgaria are likely to suffer the heaviest strain in the medium term. To make matters worse, those border locations which are not situated on major corridors with motorway links and where there are no bypass roads have to put up with a considerable load of extra traffic in their inner cities from through traffic.

Even though several additional crossing points will be opened (see Chapter 2.7), the crossing points on the major corridors will remain heavily overloaded also in the coming years.

The new transit regions will be affected most by the negative effects of growing transport and traffic flows (such as growing pollution from vehicle exhaust gas). At the same time they will see new development potentials open as their significance in east-west transport/traffic increases.

However, regions through which transit routes already ran in the past will not experience any further impetus for growth through modernization and extension alone if they fail to respond actively and adequately to the new challenges.

Positive effects could be produced if better infrastructural links are used to attract new commercial activities — e.g. through the establishment of business parks, research and technology centres — thus creating a counter-pole to the next-largest centres.

If new infrastructural projects close the gaps in the infrastructure network, the affected regions benefit from better integration into the interregional network. In other words, there is an above-average increase in the accessibility potential of these regions. However, whether this has a positive or negative impact on regions which previously had poor infrastructures depends primarily on their response potential (Chapter 3); unless they respond adequately they are liable to be 'overrun' by the extra traffic flows.

4.4. Slow ecological renewal and spatial implications

At present, it is difficult to forecast how the environmental situation in Central and Eastern Europe will develop in the medium term. The short-term improvement of air quality (dust pollution, SO₂ concentration) over the past two years, which is attributable to a decline in heavy industry production and to drastic (compulsory) energy conservation measures, cannot conceal the fact that the major environmental problems have yet to be overcome:

- (i) the restructuring of the energy supply industry (production of energy and patterns of consumption);
- (ii) the ecological renewal of smokestack-industry facilities;
- (iii) the improvement of ground water quality and the clean-up of surface water;
- (iv) the improvement of soil quality: in particular, the reduction of nitrate contamination;
- (v) land reclamation and the disposal of nuclear waste.

The countries of relative normalization will be in a much better position to improve environmental conditions than the other countries of Central and Eastern Europe. Due to their more rapid economic development, they will be able to appropriate more funds for environmental protection programmes. Owing to their closer interpenetration with Western industrialized countries, they will enjoy a greater transfer of know-how and technology and may feel more compelled to improve their environmental technologies. Finally — and not least in consideration of the EC membership which they desire — stricter environmental norms and — more decisively — effective control will be introduced, and incentives will be given for the introduction of measures to improve the environment.

Another major problem in the medium term will be the environmental situation at smokestack-industry sites. The preconditions for environmental improvements are certainly more favourable in countries of Central and Eastern Europe where moderate economic progress is taking place such as the Czech Republic, Hungary and Poland. In the so-called countries of growing instability, in

The energy supply industry is an example of how important Government action is for the improvement of environmental quality: in Poland, the Czech Republic and Slovakia, if drastic price increases were to be coupled with incentives to save energy, the emission of SO₂ could be reduced by 70% (Poland) and 30% (CR/Slovakia), respectively, by the year 2000. If no State incentives were to be offered and energy prices simply increased, hardly any reduction of air pollution could be expected in the short term, and reductions of 40% and 25%, respectively, could be expected by the year 2000 (Hughes 1991).

contrast, environmental considerations will have to take second place also in the coming years behind economic and social priorities.

Yet, even in the relatively advanced countries, sustained progress in environmental protection can be expected only in the isles of growth, in which pollution levels will noticeably decline as a result of restructuring processes in mining and heavy industry and of altered methods of production (for example, in the steel industry). The high degree of interpenetration with Western industrialized countries and, in particular, direct foreign investment, will lead to a transfer of environmental technology. In addition, patterns of energy consumption can be improved relatively rapidly in the future through international cooperation in supplying energy, for example.

However, in view of the severe shortage of public funds it is probable that priority will be given to those measures which avoid the direct costs of pollution. Examples include measures to reduce the salination of rivers due to waste water from coal mines, which severely damages water pipes and industrial facilities. For instance, clean-up measures could be drawn up to reduce permanent damage to the Vistula, which, where it flows past Krakow, has a salt concentration almost as high as that of the Baltic Sea. Similar improvements can be expected on the basis of existing strategies for cleaning up the Elbe, Oder and Danube. (see empirica 1992a) However, only residual public funds will be allocated to finance measures to improve the environment that will not result in any direct cost savings for the Government or the economy, but will make a contribution to the general improvement of natural areas and living conditions. On the other hand, ecological lasting crisis areas in which structural and environmental problems are often compounded (see above), and which have only a marginal degree of

interpenetration with the West, will hardly be capable of overcoming their environmental problems in the foreseeable future.

In all likelihood, compliance with clean-air and clean-water acts, and with environmental regulations for business and industry, will hardly improve in these crisis areas even in the medium term. Ecological concerns will continue to be subordinated to ostensibly urgent economic exigencies; long-term transitional arrangements and exceptions for industrial facilities that pollute the environment will allow for only minimal headway in fighting pollution.

Spatial impact on the Community territory

The spatial effects of ecological advances in Central and Eastern Europe are generally extremely difficult to estimate. This is due to the complexity and 'incalculability' of open ecological systems, as the following illustrates:

Despite great efforts and international campaigns aimed at combating acid rain, which in the Federal Republic of Germany for instance have led to a considerable reduction in SO₂ emissions,³⁵ forest die-back is continuing unabated (see Federal Ministry of Food, Agriculture and Forestry 1992). In the new *Länder*, too, although pollution emissions have been considerably reduced since German unification, positive effects on the state of soils, forests and waters cannot yet be detected.

Although as early as 1990 an ambitious clean-up programme was developed for the Elbe (Europe's most polluted large river) and considerable investments have already been ploughed into keeping it clean, hardly any real progress has been made up to now. In fact quite the opposite is the case: following a short-lived improvement of the values measured, the pollution levels have risen again in the first six months of 1992.

Evaluations of possible ecological effects on the Community territory caused by developments in Central and Eastern Europe are further complicated by the fact that reductions in environmentally damaging factors (for example, through the introduction of new technologies) could go along with the negative environmental effects of economic growth and improved standards of living (e.g. increased energy and fuel consumption, increase in road transport and tourism). Moreover, state-

ments about the global ramifications are therefore even more speculative than the estimation of local environmental effects.

The reduction of global environmental damage: the example of acid rain

A model calculation carried out by IIASA shows what effects a Europe-wide 18% reduction of SO_x and 6% reduction of NO_x on 1980 levels would have on the individual parts of Europe³⁶ (see Maps 39 and 40).

Even though this model shows a reduction in pollution, particularly in the north-eastern parts of Europe, it shows that levels would still be considerably above stipulated limits in large areas of Europe. Negotiations are taking place on greater reductions in pollution emissions, but it is debatable whether this will lead to any serious reductions in pollution. For instance, it would appear unrealistic, at least in the medium term, to envisage introducing the best available technology, such as technologies that find widespread use in the Federal Republic of Germany, in the Netherlands or Denmark — although they would bring about considerable improvements (see IIASA 1990).

Altogether it is worth noting that spatial effects of changes in global environmentally damaging influences are only conceivable if large-scale joint efforts are made — and even then these would only be effective in the long term.

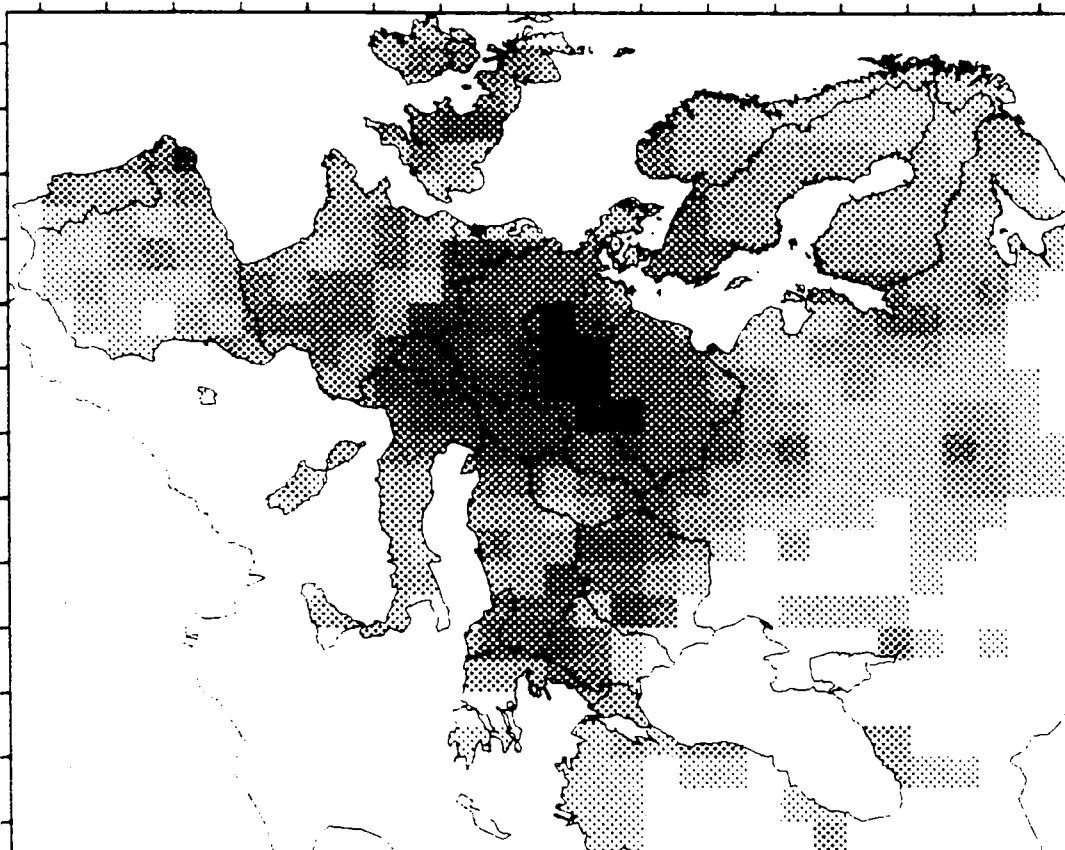
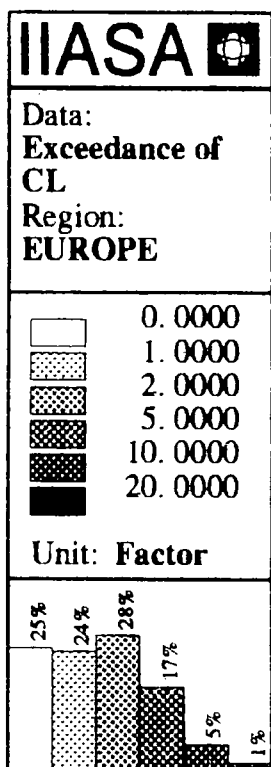
Possible environmental impact on the external border areas of the Community territory

Chapter 2 showed how certain external border areas of the Community have been particularly affected by air and water pollution stemming from Central and Eastern Europe. It can be assumed that these regions will in the short and medium term be more directly affected by ecological changes in Central and Eastern Europe than areas lying further away from the Community's eastern (or, in Greece's case, northern) frontiers. Thus positive effects will be felt immediately from the reduction of SO₂ and other pollutant emissions by the eastern countries.

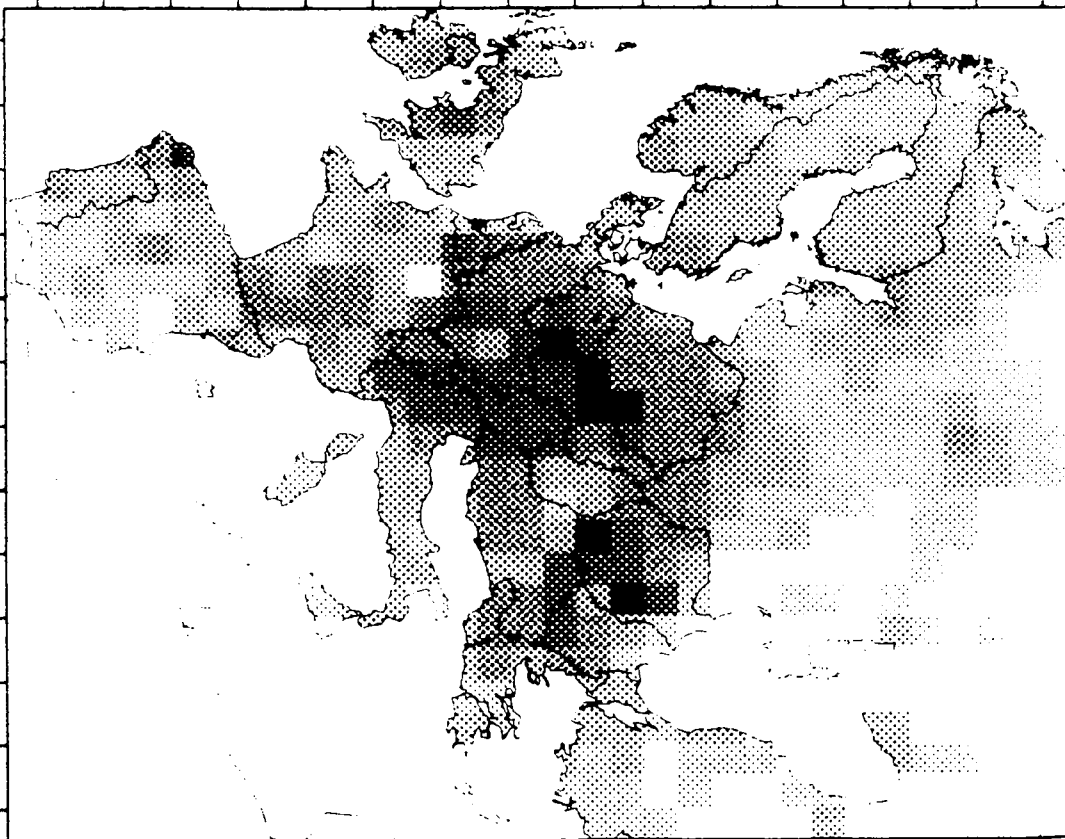
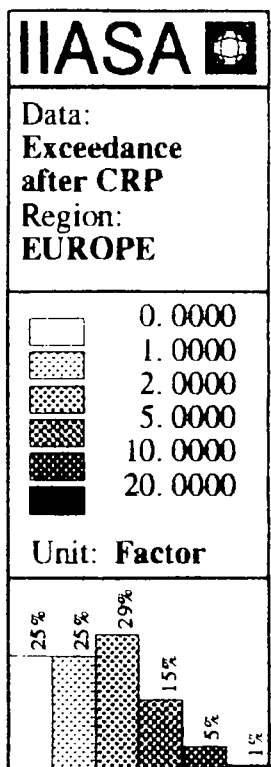
³⁵ SO₂ is responsible for 60 % of acid rain (see IIASA 1990).

³⁶ Bulgaria, Hungary, the Czech Republic, Slovakia and the former Soviet Union have committed themselves under the Helsinki Protokoll (1985) to reduce SO₂ emissions by 30% compared to 1980 levels (Poland, although not a party, declared its willingness) and under the ECE Protocol on NO_x emissions to freeze NO_x emissions at 1987 levels (see IIASA 1990).

Map 39: Regional exceedances of critical loads in 1985



Map 40: Regional exceedances of critical loads after implementation of the current reduction plans



empirica

Provided that the degree of interpenetration increases primarily with the countries of relative normalization (Hungary, Poland, the Czech Republic) and that the catching-up process continues in these countries, the scope for closer cooperation in all areas of environmental protection will increase considerably. For the Community territory, positive effects could emerge thanks to solutions to cross-border environmental problems or at least an easing of these problems (see also Chapter 2). This particularly applies to the regions bordering the badly polluted Elbe and Oder rivers and the Baltic Sea, and also to the regions where soils and forests suffer severely from airborne pollution imported from the East. In these regions in particular, where agriculture, forestry and tourism are important branches of the economy, an improvement of environmental conditions is urgently needed for economic reasons, too.

Northern Greece could greatly benefit from ecological cooperation with its neighbours, Bulgaria and Albania in the field of water management. Improvements in the availability and quality of water would provide considerable economic advantages since, for instance, new opportunities for irrigation in the farming industry would result (see Chapter 2).

There will also be local relief for border regions, for instance through the construction of new sewage works or clean-up measures or cross-border water and energy projects (for example, power bridges to the East in the event of smog). A case in point is North Bohemia where SO_2 emission is planned to be reduced substantially by the year 2000, which will have a positive effect also on the Bavarian Forest and the Ore Mountains.

Positive ecological effects can also be expected from cross-border conservation and resource management projects, which not only result in an improvement of the quality of life in these regions but could also help to greatly enhance their attractiveness as tourist locations.³⁷ It should be added though that tourism, unless it is managed prudently, could itself prove an ecological burden on these regions.

A new harmful environmental effect for the border areas comes from the growing volume of traffic. As long as the Iron Curtain restricted cross-border movements, the NO_x burden, which is primarily caused by emissions from road traffic, was very

low in comparison to the central parts of the Community. However, since the opening of the border, traffic flows and thus emission levels have already increased considerably (see Chapter 2). To curb the negative effects it is therefore imperative to build bypass roads around the border locations in question, to give priority promotion to inland navigation and railways and to new models of combined transport in East-West transport/traffic.

4.5. Medium-term likely-impact on the external border areas of the Community

The above observations on migration, transport infrastructure and environmental conditions have shown that the external border areas of the Community are likely to undergo the greatest direct impact. In addition, the opening of the borders will lead to a number of effects – triggered by diverse mutually intensifying or colliding forces of varying intensity – which in the medium or long term will also affect the spatio-economic structure of the external border areas of the Community territory. In principle, four types of effect are conceivable in some of the affected regions: cohesion effects, draining effects, island effects and exclusion effects which may be defined as follows:

Cohesion effect

The cohesion effect is a directly positive effect from the border opening both on the economic development and on the integration potential in a strip of about 40 to 60 km on both sides of the border. It is likely to emerge in border areas where the topographical conditions allow easy access across the border, where population density is relatively high and where there is no attractive centre in a distance of at least 100 km in the hinterlands. Especially consumer-oriented services but also a stronger inter-linkage in the supplier realm lead almost directly to economic stimulation. However, the centripetal effects within the area have in turn a negative effect on the hinterlands from which activities are withdrawn.

Draining effect

Characteristic of the draining effect is the lack of a sufficiently large development potential – often also due to topographical conditions – and at the same time a pull effect caused by large agglomerations on both sides of the border. The attractiveness of these two poles leads to a further drain on

³⁷ For examples of joint nature conservation and tourism projects see Chapter 2.

the zone along the border that is sparsely populated and poorly developed anyhow. Consequently, while the entire region profits from the border opening the actual border corridor is left out, unlike in other regions.

Island effect

In certain border areas, topographic and historical conditions cause the agglomerations on both sides of the border to grow together into an economic unit although still politically separate. These new bi- or tri-national centres develop their own autonomous momentum which tends to sever them to a certain extent from their respective hinterlands.

Exclusion effect

This kind of effect 'excludes' one side from the benefits of the opening of the border. It occurs where economic activity develops only on one side of the border triggering a pull effect on the other side which has neither complementary structures nor endogenous potential.

Typifying of the external border areas on the Community

An examination of the external border areas with a view to the 'likely effects' in the medium term reveals the following picture (see Maps 41, 42, 43).

Cohesion effects may develop along the German-Polish border in those areas which are located on the supraregional development axes (Berlin-Szczecin, Frankfurt/Oder-Slubice, Cottbus-Slubice and Dresden-Görlitz-Wroclaw-Katowice-Krakow). While in the central and southern parts of the border region the stronger development impetus is likely to emanate from the German side, in the northern part it will rather come from the region of Szczecin (see Map 41).

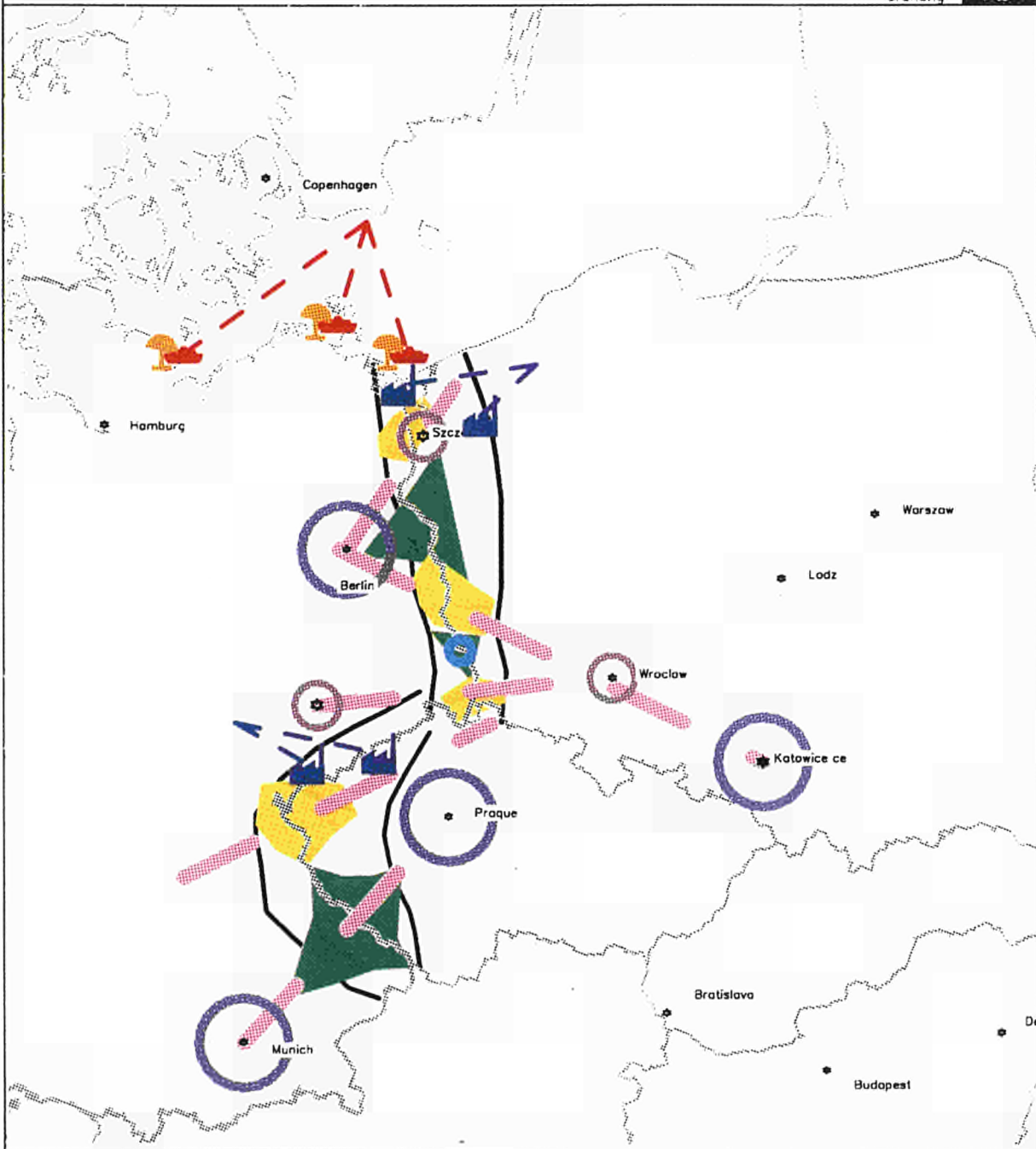
A cohesion effect is also conceivable in the 'Euregio Egrensis' comprising Selb, Marktredwitz, Cheb, Sokolov and Karlovy Vary. There an axis is currently developing in the form of an infrastructural link between Nuremberg and Prague (see Chapter 2.7) which is likely to lead to additional economic integration, not only due to its growing importance as a transport axis in East-West and West-East traffic/transport but also due to cross-border cooperation/exchange of workers: nearly

one worker out of five in the immediate western Bohemian border regions commutes to Bavaria (University of Bayreuth 1992). According to a survey of 408 firms in the Euregio conducted by the University of Bayreuth, 41% of the firms in western Bohemia, 28% in Upper Frankonia, 15% in Upper Palatinate and 13% in Saxony have business contacts with partners in the other areas (Maier 1992). Western Bohemia profits from growing outsourcing especially by Bavarian enterprises, with component supplies to the automobile industry playing a significant role. A further impetus to growth could be triggered by the recent extension of Unesco's MAB Programme to the Bavarian Forest/Bohemian Forest as the 21st International Pilot Project. The primary objective of this project is cross-border cooperation and joint efforts to develop the counties in the region. (see Map 41).

Cohesion effects may occur also in certain parts of the Italian-Slovenian border area, where a development axis Trieste-Gorizia-Ljubljana is currently developing. Influenced by the large Italian city of Trieste, the mutual links are increasing noticeably. Trieste is certainly having the stronger attracting power, even though it is hampered by its precarious actual economic situation. A counterbalancing and livening effect has been exerted for some time by the 'Zona Franca', which offers additional incentives for short-distance frontier traffic. As much as 6% of the imports to the two provinces of Gorizia and Trieste, which are covered by the 'Zona Franca' agreement, were accounted for by these 'autonomous regions' in 1990. Imports and exports together were worth ECU 165 million. In the same year, Italian exports to Slovenia reached a value of ECU 515 million, imports from Slovenia ECU 610 million. Especially the SMEs near the border have profited from this development. The extension of the infrastructural link Gorizia-Ljubljana (see above) will further strengthen these effects (see Map 42).

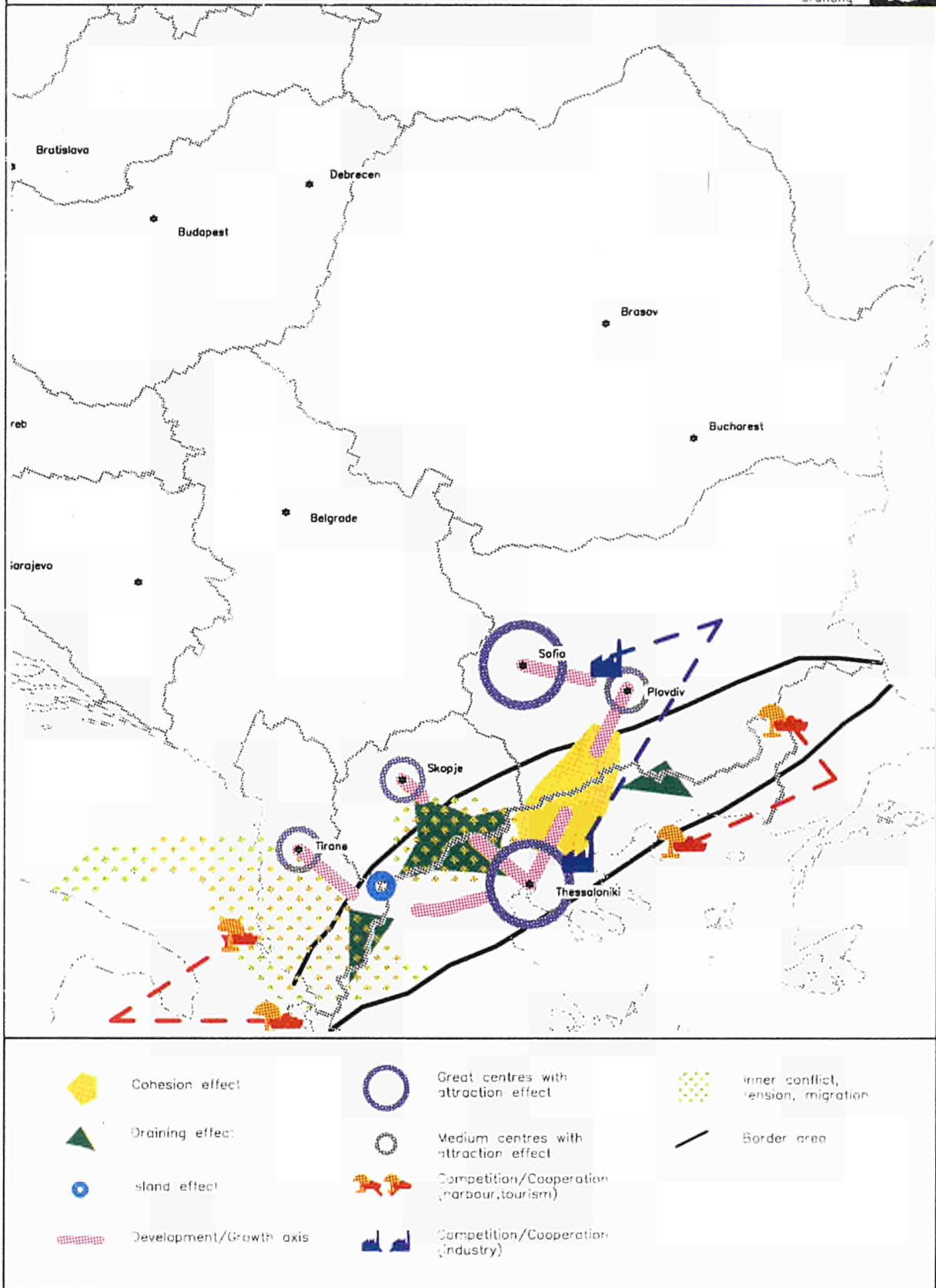
Cohesion effects of a moderate intensity may occur along the axis Thessaloniki-Sofia and along the traffic routes to the Greek ports of Kavala and Alexandroupolis (see Map 43). Several efforts are being made to intensify the cooperation between Greece and Bulgaria. An impetus to growth is expected from the new sales and investment markets and from the improved infrastructural links. However, given the enormous prosperity and development differential, it is unlikely that significant relations of competition and cooperation will emerge and the overall effect will hence be rather low in the coming years (KEPE 1992).

Map 41 Border areas interaction scheme
Germany, Poland and Czech Republic

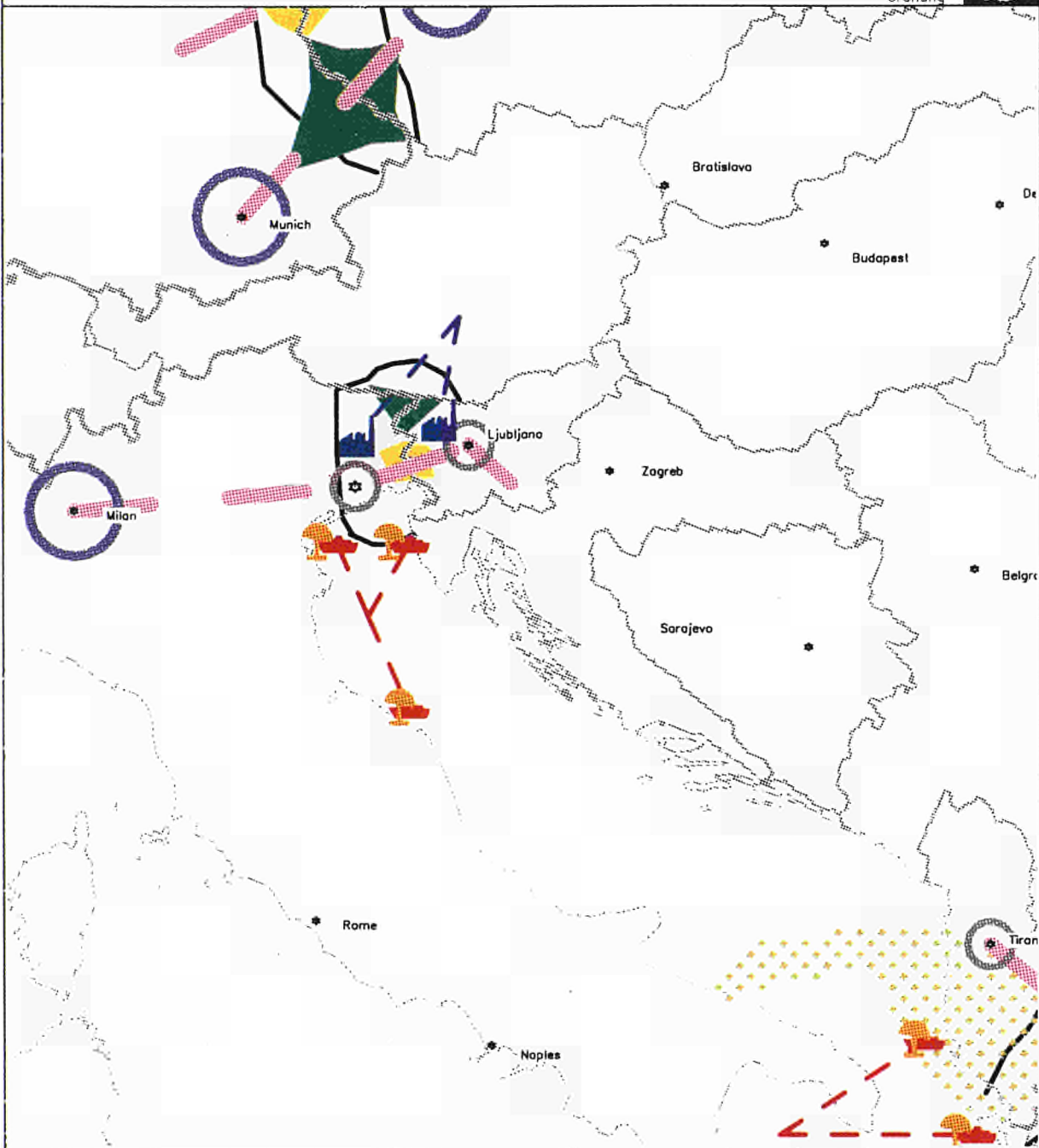


- | | | | | | |
|--|-------------------------|--|--|--|------------------------------------|
| | Cohesion effect | | Great centres with attraction effect | | inner conflict, tension, migration |
| | Draining effect | | Medium centres with attraction effect | | Border area |
| | island effect | | Competition/Cooperation (harbour, tourism) | | |
| | Development/Growth axis | | Competition/Cooperation (industry) | | |

Map 42 Border areas interaction scheme Greece, Bulgaria, former Yugoslavian Republics of Macedonia and Albania



Map 43 Border areas interaction scheme
Italy and Slovenia



- | | | | | | |
|--|-------------------------|--|---------------------------------------|--|------------------------------------|
| | Cohesion effect | | Great centres with attraction effect | | inner conflict, tension, migration |
| | Draining effect | | Medium centres with attraction effect | | Border area |
| | Island effect | | Competition/Cooperation (tourism) | | |
| | Development/Growth axis | | Competition/Cooperation (industry) | | |

Along the German-Polish border the regions between the growth centres of Szczecin, Dresden und Görlitz are prone to a draining effect. Given their enormous structural problems (a dominant agricultural sector) and poor alternative employment opportunities, they are likely to see considerable out-migration also in the medium term (see Map 41).

A draining effect is imaginable in Slovenia on the border to Italy, north of Gorizia where the mountains and the few transport links form a natural barrier. Given these conditions, the local centres are bound to be influenced predominantly by the economic activity which is increasingly developing from the interior. The same phenomenon is seen in the 'Euregio Egrensis' in the southern Bavarian-Czech border segment between Waldsassen and Waidhaus as well as in certain areas between Saxony and western Bohemia, where the lack of road connections is the major underlying cause (see Map 42).

The region along the border between Greece and the former Yugoslav Republic of Macedonia might be affected by a draining effect, if the political situation in the disintegrating parts of former Yugoslavia does not normalize. The transit route across Serbia and Croatia, formerly the most frequented route, is losing importance and mutual relations have been drastically reduced, as mentioned above (see Map 43).

Island effects might occur here and there along the German-Polish border if the planned cross-border projects (leisure parks, Euro-city Guben/Gubin) (see Chapter 2.7) fail to have a positive impact on the surrounding areas (see Map 41).

An island effect may occur — though in a very moderate form — along the Slovenian-Italian border segment of Gorizia-Nova-Gorica. The sections of the city separated by war are growing more and more together; adverse factors are, however, the relatively weak economy of Gorizia as well as the still very low population and economic potential on the Slovenian side (see Map 42).

An island effect may make itself felt also in the border triangle between Greece, Albania and former Yugoslavia, if the plans for joint action to develop the Prespa Lakes for tourism should be carried through. It is very doubtful, however, whether this project could be realized even in the medium term (see Map 43).

Summing up one can say that of all possible effects the cohesion or draining effects are likely to dominate, while island or exclusion effects will probably play a subordinate role. In many cases it is impossible, however, to definitely classify the regions according to one of the four categories of effects as mixed forms prevail. Nevertheless, these categories help to clearly distinguish several important developments which will show in a similar form in most border regions:

The strongest concentration of positive and negative effects of the opening of Central and Eastern Europe will presumably be felt within a strip of 40 to 60 km on both sides of the borders which may run parallel or diagonally to the border or, in the case of a transit region, along a relatively narrow passage corridor.

Cohesion effects are likely to have an invigorating influence on industry and commerce for the neighbours on both sides; in the medium term, however, the eastern side should have more direct benefits, whereas the western border area will only participate indirectly — via joint ventures or outsourcing. The prices in the eastern border area will probably adjust to the western levels earlier and more quickly than in other parts of the eastern country — without it losing its comparative cost advantage at least for the near future.

A further characteristic may be the phenomenon of intermittent 'lean strips', caused by the draining or pull effect exerted by growth areas (for example, on the labour market). The more vigorous the development in these areas ('fat strips') is, the stronger is their pull effect, weakening the 'lean strips' still more.

The number of job-seekers in the growth regions of the western border areas will increase (especially for less skilled jobs — for example in the construction and catering sector) — since growing numbers of eastern commuters will look for employment; at the same time the demand for labour will decline in relative terms since local factories will turn to outsourcing in neighbouring regions in the East.

The services sector will certainly gain in importance in the border areas on both sides of the frontier and, where cohesion effects play a role, will benefit most in the western part. In the medium term, however, there will be a definite and strong trend also on the eastern side towards the services, especially consumer-oriented services. For short-term tourism and shopping excursions,

the differing price levels for consumer goods and services present a considerable incentive — the greater attractiveness being clearly in the eastern part.

High traffic concentration, resulting environmental pollution, inflow of pedlars and related semi-legal or illegal dealings are burdens which border regions — on both sides — have to bear. These problems can easily become political issues; at government level they are often traded as economic 'package solutions', among the public they often stir up resentments.

The external border regions of the Community territory will doubtlessly see positive effects as regards consumers in the medium term, whereas the effects may be rather negligible or even negative with regard to employment and overall economic growth. The eastern border areas bordering on the Community territory, on the other hand, show a number of positive impulses for economic and employment growth which seem apt to narrow the economic gap in the medium term.

5. Medium-term likely-impact on the Community territory

5.1. Possible determinants of future spatial impact

Assuming that Central and Eastern Europe follows the course of development described in Chapter 4, the degree of interpenetration between the Community and the countries of relative normalization, and especially the isles of growth, will increase in future. These regions will become attractive markets and investment locations for companies from the Community territory. As their economic and technological development advances, they will increasingly compete with western locations.

Increasing economic growth in the isles of growth and along the development axes will multiply trade relations with the Community territory not only in quantitative terms: the pattern of trade flows will also change. Apart from those affected industries which were assumed to be the most important sectors in our short-term analysis (see Chapter 3.1), the so-called modern industries may become more relevant in the medium term. In addition, however, reciprocal competition could boost those sectors for which comparative advantages are expected in the countries of Central and Eastern Europe in the coming years.

The intensification of relations between the Community territory and the countries of relative normalization or the isles of growth and the expected process of these countries and regions moving closer to the Community will also lead to easier access to the markets on either side. More comprehensive association treaties and/or the expiry of transitional customs arrangements and the abolition of import quotas, etc. will bring about an

increase in accessibility potentials (see Chapter 3), which, in turn, will have spatial consequences for the Community territory. The assumptions made as to the likely development path will be specified in the model below, and the results will be presented in maps.

5.2. Medium-term likely-impact model

Provided that the assumptions, set forth in Chapter 4, on the spatial development in Central and Eastern Europe apply and that the degree of interpenetration between Eastern and Western Europe intensifies in the medium term, the impact determinants for the Community territory will change from the status quo. On this basis the potential changes in the individual regions in the Community are examined. Will the effects fundamentally change in the medium term, or even reverse? Will there be a gradual change in the degrees of interpenetration between certain EC locations? Will those regions which have so far been less affected have to expect a greater impact in the medium term? Or, conversely, will the current adjustment pressures on certain regions be eased?

In order to be able to measure the possible medium-term effects of the developments in Central and Eastern Europe, the short-term likely-impact model was modified with regard to economic sensitivity and accessibility potentials.

Modification of economic sensitivity

In the medium term we have to expect that the number of factors involved in business relations

between the regions of Eastern and Western Europe will rise. In the medium-term likely-impact model the group of industries sensitive in the short term will therefore be extended to include the following sectors:

Industries sensitive in the medium term

NACE	Industries
14	Mineral oil refining
22	Extraction/preliminary processing of metals
25+26	Chemical and fibre industry
32	Mechanical engineering
43	Textile industry
45	Footwear and clothing industry
33+34	Data-processing machinery and electrical engineering
35+36	Motor vehicles and other means of transport
37	Instrument engineering
46	Timber/furniture
47	Paper/paper products

Source: Empirica.

The data processing machinery and electrical engineering and instrument engineering sectors can be described as potentially important future sectors if demand for high-tech products rises in line with the economic and technological development in eastern Europe. However, as far as eastern Europe's exports are concerned, the timber and furniture and paper and paper products sectors seem to have the greatest potential for growth (see also *Landesmann* 1992b).

This was borne out by company surveys conducted by the Ifo Institute (see also Chapter 3.3).

Medium-term sensitivity of industries

Electrotechnical engineering

So far there has been little commitment by Western companies in Central and Eastern Europe. Projects are mainly local and concentrated on telecommunications and energy supply. Realistic opportunities for expansion are not envisaged for some years. While Eastern components suppliers in the electrotechnical industry still exert little or no competitive pressures, keener competition is expected in future with respect to mass-produced products such as switches, switchgear, plugs, motors, etc., which may also force staff cuts in the West. Particularly favourable conditions for future direct investment are seen in Hungary, Poland, the Czech Republic and in the Ukraine.

Paper and paper products

So far commitment by EC companies has been relatively timid. However, competition by large investors

is expected to increase in the coming years. Finland and Sweden have already heavily invested in, and transferred considerable know-how to, the Baltic countries and large investments are being effected by Japanese corporations which can take higher risks than their mostly small- and medium-sized EC competitors.

Timber and furniture

In Russia (Siberia) the production and export potentials are large, but they remain largely untapped at the moment because of considerable logistical problems, technological backwardness and insufficient quality. Certainly, once these obstacles are overcome, rising exports into the EC may lead to considerable turbulence, as was the case in the 1920s. Therefore, local wood suppliers and processing companies are deeply concerned about the prospect of being forced out by foreign competition. The furniture industries face similar fears because they expect that competitive pressures in the low-price market segments, especially from Poland, will continue to grow in the coming years.

Provided that Central and Eastern European standards of living rise, new markets may be opened up in the motor vehicles and other means of transport sectors. Conversely, competition from Eastern Europe may increase, not least as a consequence of large foreign investments in the region. Their common feature is that they — along with the industries sensitive in the short term — may exert the biggest effects on competitive conditions for companies on the Community territory.

At the same time, however, the sensitivity of the currently affected sectors will remain or even increase, because one can assume that, in the medium term, structures in Central and Eastern Europe will not change so drastically that, for example, the mining and heavy-industry sectors will lose their importance. On the contrary, it is to be expected that in five to six years' time the pressures to adapt will become stronger in the so-called sensitive sectors of the EC — namely coal and steel, textiles and agriculture/food industry — once the transitional periods and special arrangements laid down in the association treaties with Hungary, Poland, the Czech Republic and Slovakia have expired. Even though genuinely free competition will hardly prevail³⁶ it is to be expected that the adjustment pressures will continue to rise as a result of the policy response to developments in Central and Eastern Europe.

³⁶ The association treaties also stipulated that, for example, no crowding-out competition would be allowed and that national concerns would still have to be respected.

Sectoral sensitivity — as in the short-term likely-impact model — was expressed in terms of the share of employees of the respective sectors in the total workforce. In order to make allowance for the lower reliability of medium-term compared to short-term sensitivity, the model weights the figures by a factor of two thirds (short and medium-term sensitive industries) and one third (medium-term sensitive industries).

In addition, as in the short-term likely-impact model, the agriculture and food-industry sector is examined as well, as it can be assumed that this group will be strongly affected also in the medium term.

Map 44

As expected, Map 44 shows that more regions on the Community territory will demonstrate sectoral sensitivity in the medium term. Such regions include above all the motor vehicle and electrotechnical centres of southern Germany and northern Italy. However, owing to their economic structures high sensitivity can also be detected in locations in southern parts of the United Kingdom and in the eastern coastal regions of Spain and Italy as well as in the Thessaloniki region. It is also interesting to see that in the medium term some regions, such as locations in western France and Norte (Portugal), demonstrate relatively less sensitivity compared with the Community average and compared with the short-term effects.

It is not only to be expected that the number of regions affected will rise, but also that the sensitivity faced by the individual locations will increase in the medium term. Although this qualitative dimension of sensitivity is not explicitly shown by the model, it was corroborated by the findings of the Ifo survey:

Almost 50% of the questioned companies reckoned that those parts or units which have small value-added elements would be transferred to the East in the medium term; 40% of the respondents said that staff cuts at Western locations would be a consequence of activities in the East. There were particularly marked differences between manufacturers of capital goods and consumer goods producers. While a large majority of the former group cited strategic considerations, primarily expansion into new markets, as the reason for their activities in Central and Eastern Europe and two thirds expected their Western locations to profit from these activities, the consumer-goods producers presented the opposite picture: two

thirds of respondents expected no or a negative impact on their western locations to result from the opening of the East and they did not rule out further staff cuts because most of their operations in the East were producing for Western markets.

Increase in accessibility potentials

As a determinant, accessibility potential must also be adjusted to the expected changes. Given the developmental paths outlined in Chapter 4, the countries of relative normalization are moving ever closer to the Community territory, while other countries are (at best) stagnating at present levels. To take into account the resulting spatial changes, the weighting factors of the short-term likely-impact model were altered as follows:

**Table 19: Index of accessibility potential
Weighting factors (medium-term effects)**

Countries/regions	Weighting factors
EUR 12	100
EFTA	100
Turkey	100
Poland, Hungary, Czech Republic	100
Slovakia	75
Romania, Bulgaria	75
Slovenia	75
Estonia, Latvia, Lithuania	75
Former Yugoslavia (excluding Slovenia)	50
Albania	50
Russia, Ukraine, Belarus, Moldova	50

Source: Empirica.

As in the short-term impact model the criteria of goods traffic, rail traffic and joint use are employed, standardized and combined through addition to form an accessibility potential index.

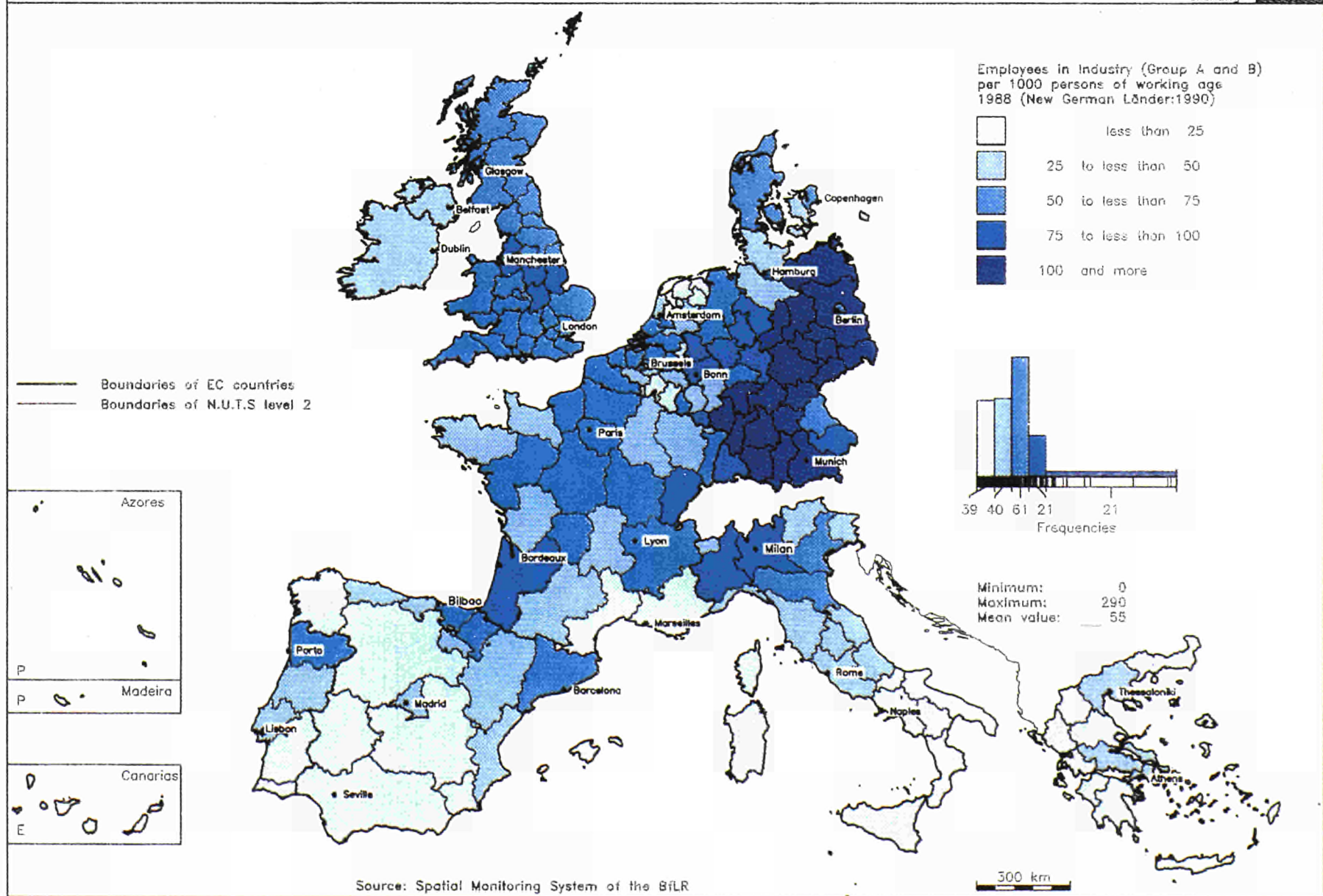
Map 45

Map 45 shows that some regions of the Community territory move up to the next group as their accessibility potential increases very strongly as a result of the border-opening process.

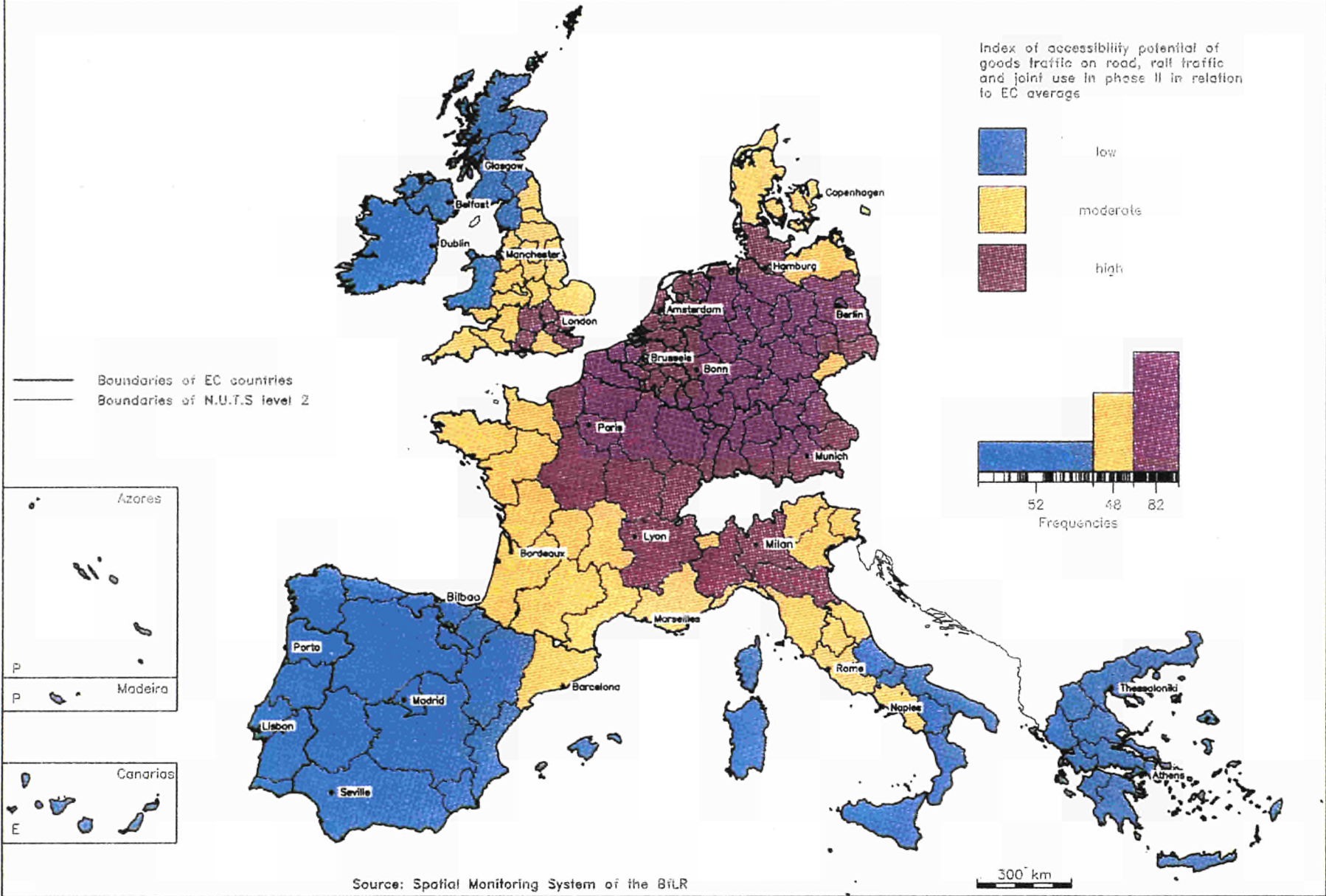
Since it has been assumed that faster border-opening processes will take place (expressed in terms of higher weighting factors) with respect to the northern belt of Central and Eastern Europe, the greatest impact will be experienced in north-eastern locations in the Community. Most directly affected are the new and old *Länder* in Germany, but also regions of the United Kingdom and northern Italy.

Map 44
Employment in industry (Groups A and B)

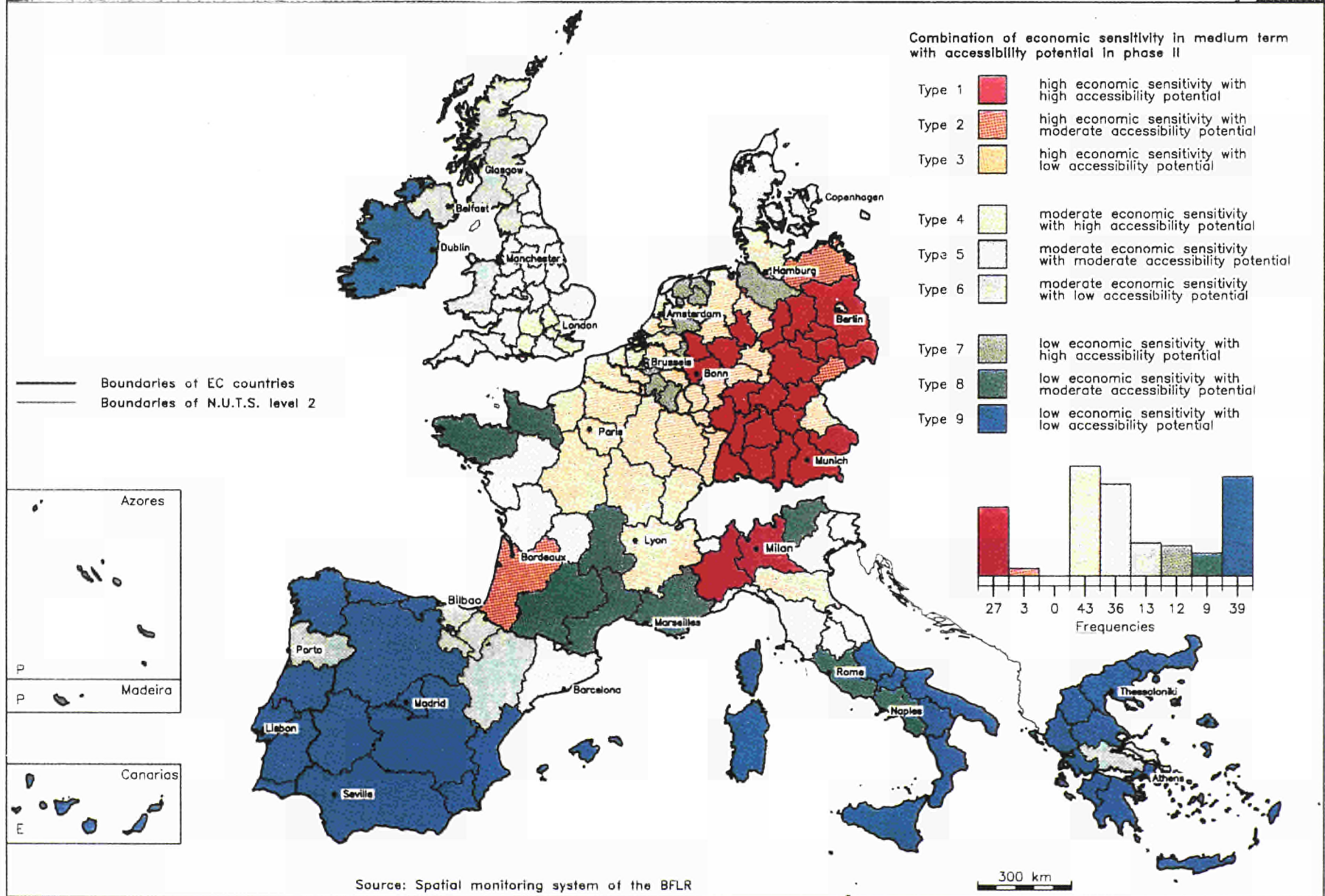
Landes
kunde
und
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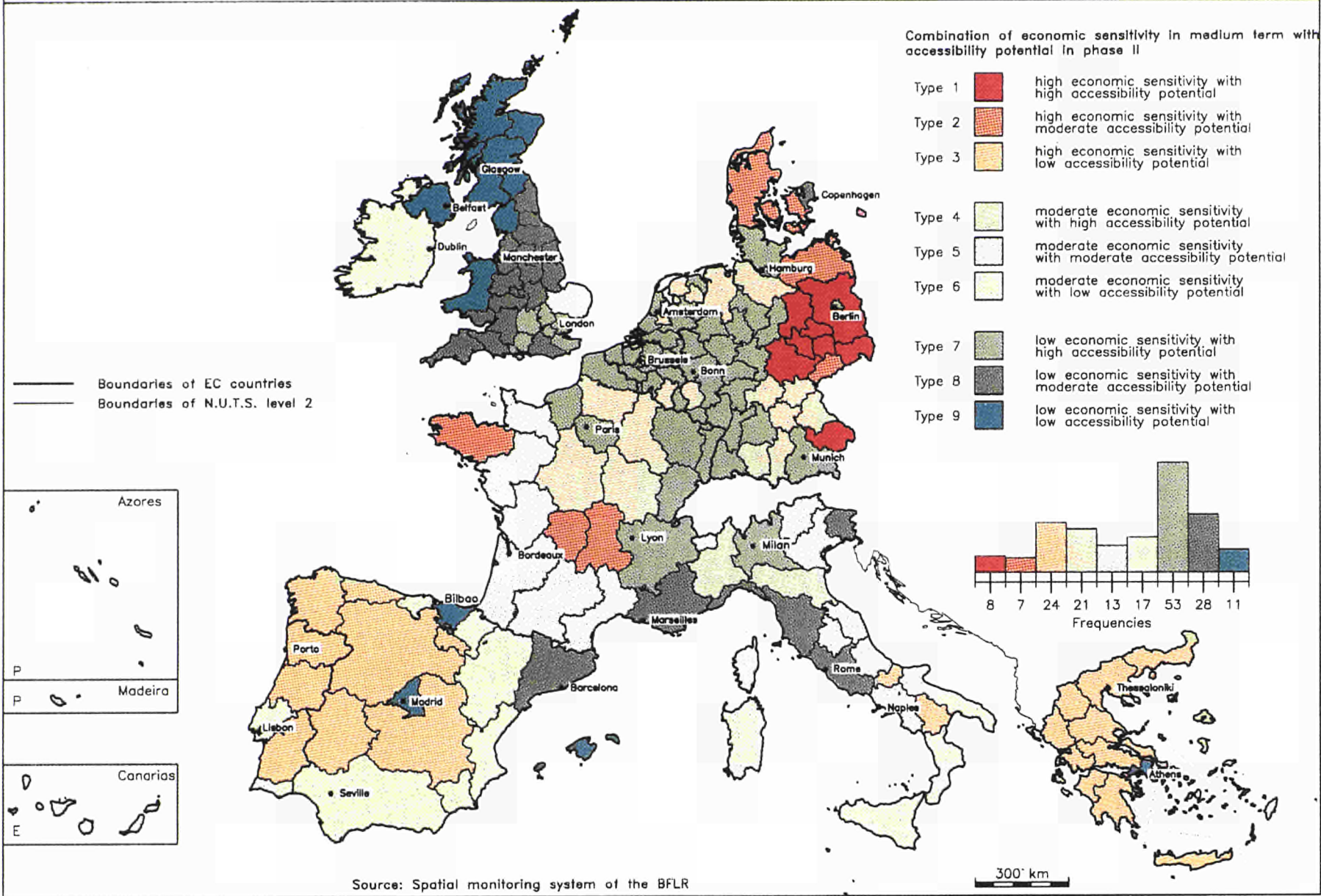
Map 45
Accessibility potential index (Phase II)



Map 46
Medium-term involvement (Groups A and B)



Map 47
Medium-term involvement (Agrobusiness)



Medium-term interpenetration

Maps 46 and 47 show a combination of the determinants medium-term economic sensitivity and accessibility potential index, phase II.

Map 46

In terms of industrial sensitivity large parts of Northern and Central Europe but also central Italy and central regions of the United Kingdom belong to Types 1, 2 and 4, i.e. they are characterized by a high degree of involvement/interpenetration. The peripheral/rural regions are, however, hardly affected even in the medium term. The exceptions are regions in central parts of Greece where the degree of interpenetration will increase over the medium term.

Map 47

Map 47 shows that even in the medium term the relative increase in the accessibility potential only has a slight or, at most, average effect on the Community's southern agricultural locations; Types 3 and 6 prevail. On the other hand, the north-eastern agricultural locations reveal a high degree of interpenetration. Owing to the increasing accessibility potential the new German *Länder*, in particular, are more strongly involved in the medium than in the short term. However, in general there are only minor differences between Maps 21 and 47. Regions with a currently high degree of interpenetration are also strongly affected in the medium term.

As regards the Greek regions, it is somewhat surprising to find that also their accessibility potential remains below average. Although their index value increases as the opening up of Central and Eastern Europe progresses (simulated by raising the weighting factors) they do not move up into a higher category (which would be Type 2 and Type 8 for Attika).

Under the assumption that the effects on the food industry will in any case be stronger in the medium term than up to now (see Chapter 5.1), this qualitative aspect must be taken into account in the interpretation of the maps. It means that economic sensitivity in the agrobusiness will increase overall.

Since this applies equally to all locations, there will be no fundamental change of the effects but only a further increase in sensitivity. However, not all areas of the agricultural sector are equally affected. In some, for instance sugar production and fruit and vegetable processing, a location in

the West may find itself competing with a location in the East as a result of growing competition from Eastern producers. Table 20 shows such potential twin competitors (see Steinle 1992).

The significance of the spatial proximity of the affected locations for the extent of the potential effects also became apparent in Ifo's discussions with company managers (Ifo survey 1992). Thus, the most attractive locations for current investment decisions (the industrial and administrative centres in Hungary, the Czech Republic and Slovakia and in Poland) were rated as serious competitors for Western locations in the years to come.

The biggest potential threat – in terms of increasing competitive pressure, the transfer of production processes and a reduced slice of the investment cake – was thought to exist for locations close to the abovementioned countries. However, the interview findings also permit the conclusion that the change in economic sensitivity alone, resulting from the opening-up of the East, is not a very significant indicator but needs to be seen in the context of the strengths and weaknesses which the sectors/regions have displayed so far. Thus, in order to judge the medium-term possible effects, the determinant response potential is also used.

Table 20: Examples of interregional competition on product markets

Markets	Examples of EC regions	Examples of East and Central European regions
Agriculture		
sugar	Southern France	Czech Republic (outside Prague)
wheat	Northern Germany	Poland
goat cheese	Greece, Southern Italy	Bulgaria
poultry	Netherlands	Poland, Southern Hungary
paprika, peperoni, olives	Greece	Bulgaria, Hungary
beer	Upper Bavaria, Düsseldorf	Pilsen (Czech Republic)
Manufacturing		
timber	Veneto, Detmold	Siberia
textiles	East Germany, Champagne-Ardenne, Tuscany, East Midlands	Poland
iron, steel, coal	East Germany, Arnsberg, Corraine Nord-Pas-de-Calais	Krakow, Katowice (Poland)
cars/vehicles	Northern Spain, Piemont, Haute Normandie, Franche Compté, South West (U.K.)	Boleslav (north of Prague)

Source: Steinle 1992.

Response potential

The criteria used in the short-term likely-impact model to measure the regional response potentials are not changed in the medium-term model. There are two important reasons for this:

If one wanted to evaluate the individual indicators for the medium term, for example, over 7 to 10 years, then one would have to consider a plethora of external causal factors which are not directly related to the opening up between East and West. Here one need only refer to the expected effects of the internal market (see empirica 1988) on sectors and regions in the EC. However, this would greatly distort the potential impact of the medium-term developments in Central and Eastern Europe. The aim of the model is, after all, to show a possible adjustment constraint, i.e. the necessity for a region to increase its competitiveness over the medium term with regard to developments in Central and Eastern Europe. It can also be assumed that the competitiveness of the EC regions will not experience any abrupt changes as a result of the short-term impact of developments in Central and Eastern Europe, but that a gradual change is more likely. A region which shows high short-term growth potential as a result of the opening up between East and West will — if it utilizes this potential — become more competitive over the medium term. On the other hand, a region which reacts insufficiently to adjustment pressure will tend to lose competitiveness over the medium term.

Medium-term likely impact

Maps 48 and 49 show the results of the medium-term likely-impact model. The individual regions of the Community territory are classified according to the four-field matrix which has been outlined in Chapter 3.3.

Map 48

The medium term produces no significantly altered spatial picture for the industrial sector: for a large number of regions the effects are insignificant, i.e. there may — as in the short term — be both growth potentials and greater competition and adjustment pressure (Type 5). Growth potentials continue to be concentrated in the central parts of the Community and in so-called innovation centres. A comparison of maps 28 and 48 shows, moreover, that the potential effects do not depend decisively on economic sensitivity — expressed in terms of sector categories — but

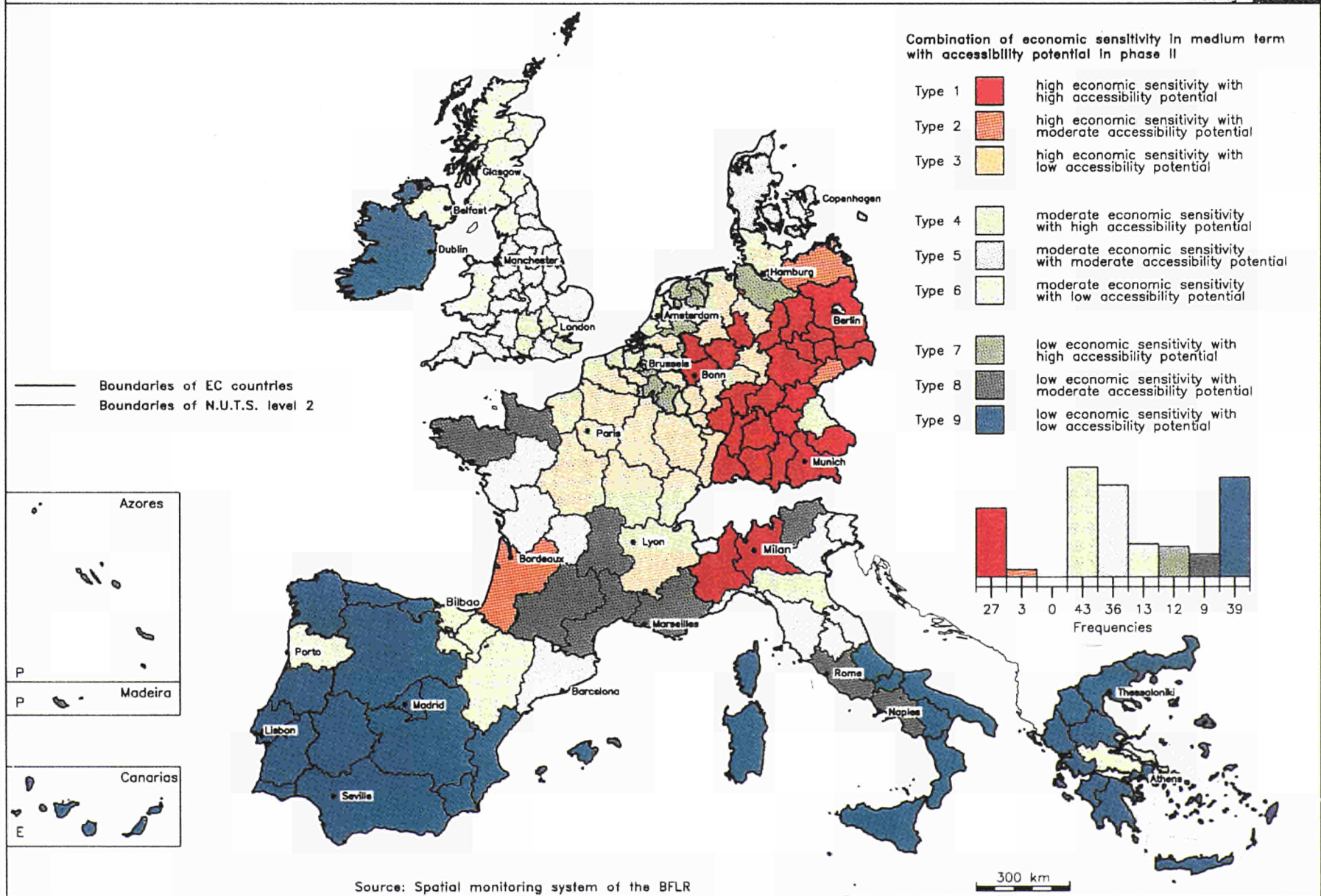
rather on the adjustment capabilities, i.e. response potential of the individual regions. This is of direct relevance, as it is the growth regions which are characterized by a highly differentiated economic structure. In addition, the industrial sector in these regions no longer plays such an important role in comparison to the service sector. The number of persons employed in the services sector has already reached up to 75% in some EC regions.

The picture remains almost unchanged with respect to the medium-term impact on the regions which are weak in development terms: large parts of Portugal, Spain and southern Italy will also scarcely see their economic sensitivity affected over the medium term, as their engagement in future-oriented industries is low and the accessibility potential is increasing at a slower rate than in the northern or eastern regions of the Community. The greatest potential dangers continue to face the new German *Länder* — if their response potential does not increase over the medium term. The response potential may change in the medium-term picture for the better for those regions which will be able to demonstrate above-average growth and development in the coming years.

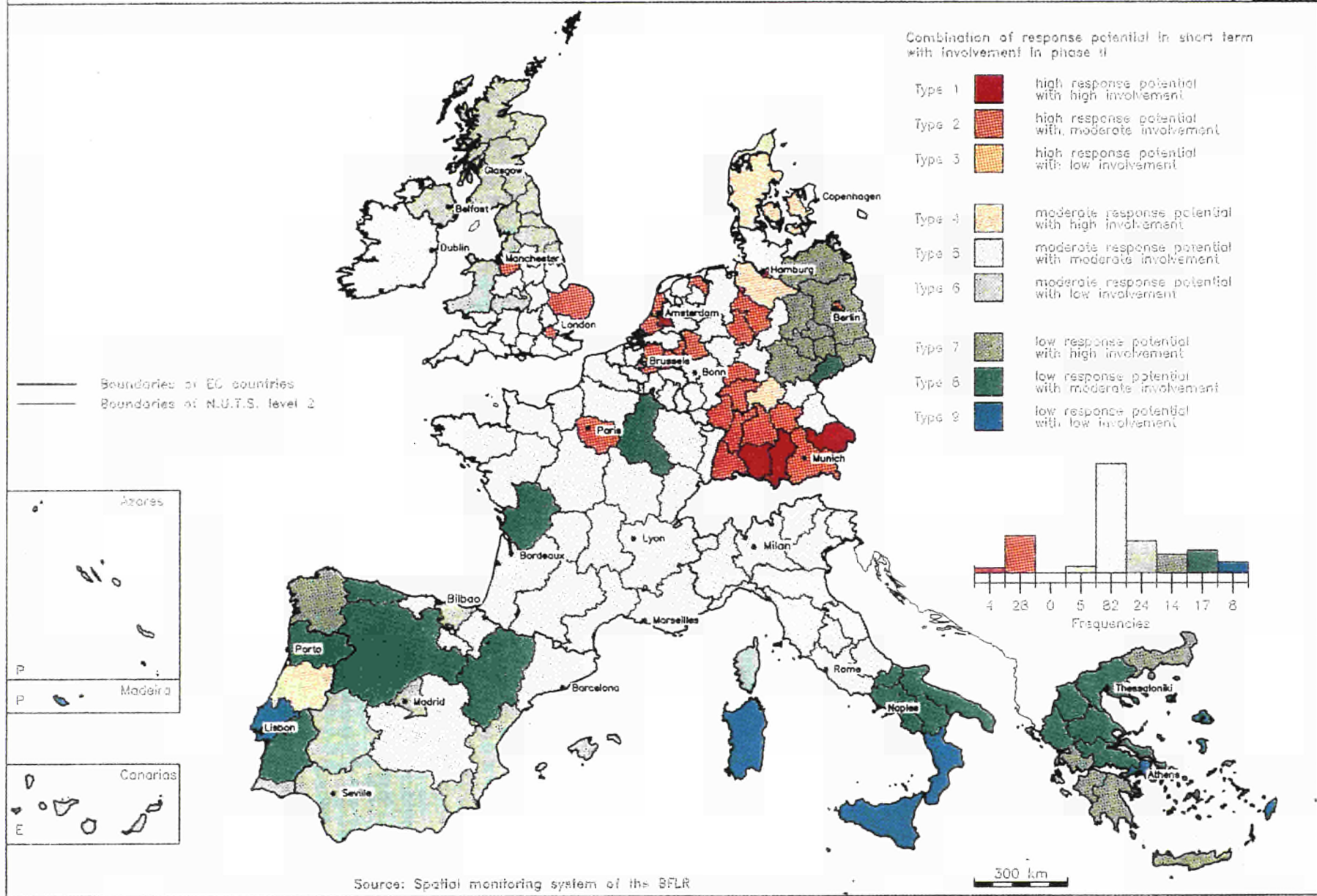
Also the position of the Greek regions within the Community remains unchanged (relatively speaking). This proves that the mere improvement of the East European markets' accessibility (the weighting factors for Bulgaria and Romania were raised from 50 to 75) has no significant effect on the accessibility potential and hence the interpenetration potential. The picture might change if infrastructural projects were implemented (as outlined in Chapter 4) in Central and Eastern Europe creating the technical conditions to reach large numbers of people in a given time (goods traffic, joint use, see Chapter 3.2).

While in the model the weighting factors were changed, the technical lines of communication, i.e. infrastructural networks, were assumed to remain the same. If infrastructural measures were carried out, for instance, it would mean for Type 2 (London, Manchester) that its potential growth effects would increase as its accessibility potential increases. Of course, this would not mean that a closer infrastructural integration is only advantageous for potential growth regions, and regions with a smaller response potential should better continue to be inaccessible. A comparison of maps 19 and 27 even suggests that a high accessibility potential is directly related to a high

Map 48
Medium-term involvement likely impact model (Groups A and B)



Map 49 Medium-term likely impact model (Agrobusiness)



response potential.³⁹ The level of GDP and the innovation activities in particular appear to be positively correlated with the accessibility potential. These correlations are plausible: a high accessibility potential offers a region the possibility to become more tightly interpenetrated with other regions, thus promoting economic and technological development (with a time lag). On the other hand, a high level of prosperity and a high innovation potential in a region allows it to continue to increase its accessibility potential (extension of the road and rail network, airport capacity, etc.). Potentially endangered regions thus need a higher accessibility potential to accelerate structural change and to facilitate technological progress.

Map 49

Map 49 shows that the spatial picture regarding the potential impact on agrobusiness also changes little over the medium term. However, at the same time, as has already been stated above, the likely impact on the agricultural sector, i.e. expectations regarding competition or the adjustment pressure, will tend to increase after five to six years. This means that the need for the affected regions to react flexibly to changed conditions in the agricultural sector will tend to grow over the medium term.

In conclusion it can be stated that, compared to short-term effects, in the medium-term likely-impact model there are scarcely any differences in spatial impact. The regions which are already experiencing a greater impact today will also remain more strongly affected in the medium term. Minor differences will arise, however, as a comparison of the indices for a few particularly intriguing examples show:

Regions with increasing interpenetration in the medium term compared to EC average

Sensitive industries	Agrobusiness
Stuttgart	Øst for Storebælt
Bremen	Berlin
Central Frankonia	Dresden
Braunschweig	Dessau
Franche-Comté	Chemnitz
Upper Bavaria	Halle
Lower Bavaria	Magdeburg
Kassel	Hovedstadsregionen
Karlsruhe	Vest for Storebælt
Berlin	Central Makedonia

³⁹ This assumption was confirmed by means of a regression analysis whereby the accessibility potential (joint use) was expressed as a function of the following indicators: GDP-level, production-related infrastructure, innovation potential and SO₂ emission. GDP-level had the highest regression coefficient (0.43), followed by infrastructure (0.34), innovation potential (0.15) (adjusted r: 0.64), SO₂ proved insignificant.

Regions with decreasing interpenetration in the medium term compared to EC average

Sensitive industries	Agrobusiness
Rhine-Hesse-Palatinate	Pais Vasco
Norte	Castilla Leon
Luxembourg	Castilla La Mancha
Aquitaine	
West Flanders	

The regions experiencing a greater impact over the medium term due to the higher level of interpenetration with the countries of Central and Eastern Europe include parts of Bavaria, Stuttgart, Bremen and Braunschweig, but also the Franche-Comté region (France). With regard to the impact on agrobusiness, the index values for the individual regions only change slightly, and this change is solely due to the higher accessibility potential, as the indicators for establishing the economic sensitivity have not been changed. The new German *Länder*, as expected, are among the strongly affected regions.

However, there are some regions where the impact over the medium term will decline in relative terms, even if only to a limited extent. This group includes, for example, Rhine-Hesse-Palatinate, Norte, Luxembourg, Aquitaine and Pais Vasco, Castilla Leon and Castilla La Mancha. All changes refer to the Community territory as the comparative basis, which means a decline in the degree of economic sensitivity cannot be stated in absolute, but rather only in relative terms.

5.3. Specification of likely impact and evaluation of prototypes of regional sensitivity

The analyses presented in the preceding chapter generally give reason to assume that the spatial effects of the reform processes in Central and Eastern Europe will intensify the processes which are presently taking place in the Community.⁴⁰

Those regions of the Community which are competitive will be fit best to measure up to the challenges and therefore able to derive additional impulses for growth.

The structurally weak regions, in contrast, have only little chance of improving their position

⁴⁰ The dimension of such spatial effects relative to other effects (for example, from the Single Market) is likely to be rather small, as the shift of the theoretical centre (accessibility index) from Maastricht to Darmstadt, i.e. about 200 km south-eastward, suggests.

through greater interpenetration with Central and Eastern Europe and they run the risk of dropping back still further.

Obviously there is a close correlation between interpenetration and response potential, which means, in other words, that most regions behave as is to be expected. Regions with a high accessibility potential had already in the past been exposed to considerable competition and been forced to undergo processes of structural change or benefited from their well-developed infrastructural linkage. Regions with a low degree of interpenetration — caused by low economic sensitivity, geographical remoteness or lack of infrastructural links — have been relatively unaffected by competition and are therefore less prepared for adjusting to changing conditions.

It is therefore not surprising to find that most of those regions which were among the winners in the past will draw new additional impetus from the opening of Central and Eastern Europe, whereas weaker regions will come under additional pressure.

So, the interesting cases are those regions whose interpenetration and response potential indexes diverge, for they may expect truly new effects from the developments in Central and Eastern Europe and must conceive and apply new strategies of adjustment in order to face up to the challenges:

- (i) If a region's degree of interpenetration is higher than its response potential, this means that it will be unable in its present condition to cope with the new challenges, that it will get under additional adjustment pressure and risk to lose competitive strength.
- (ii) If, in contrast, a region's response potential exceeds its degree of interpenetration, this means that the developments in Central and Eastern Europe may open up new growth potentials which, however, remain unexploited unless the region, in time, develops strategies of specialization and adjustment to intensify its interpenetration with the countries of Central and Eastern Europe.

In order to identify those regions where the likely impact in the medium term deviates from the above-described standard impact, we leave the relatively rough nine-type grid (see, for example, Maps 28/29 and 48/49) and examine the standardized index values for the interpenetration and response potential of all NUTS-2 regions of the Community.

Map 50 shows the spatial distribution of these types of spatial sensitivity in the medium term.⁴¹

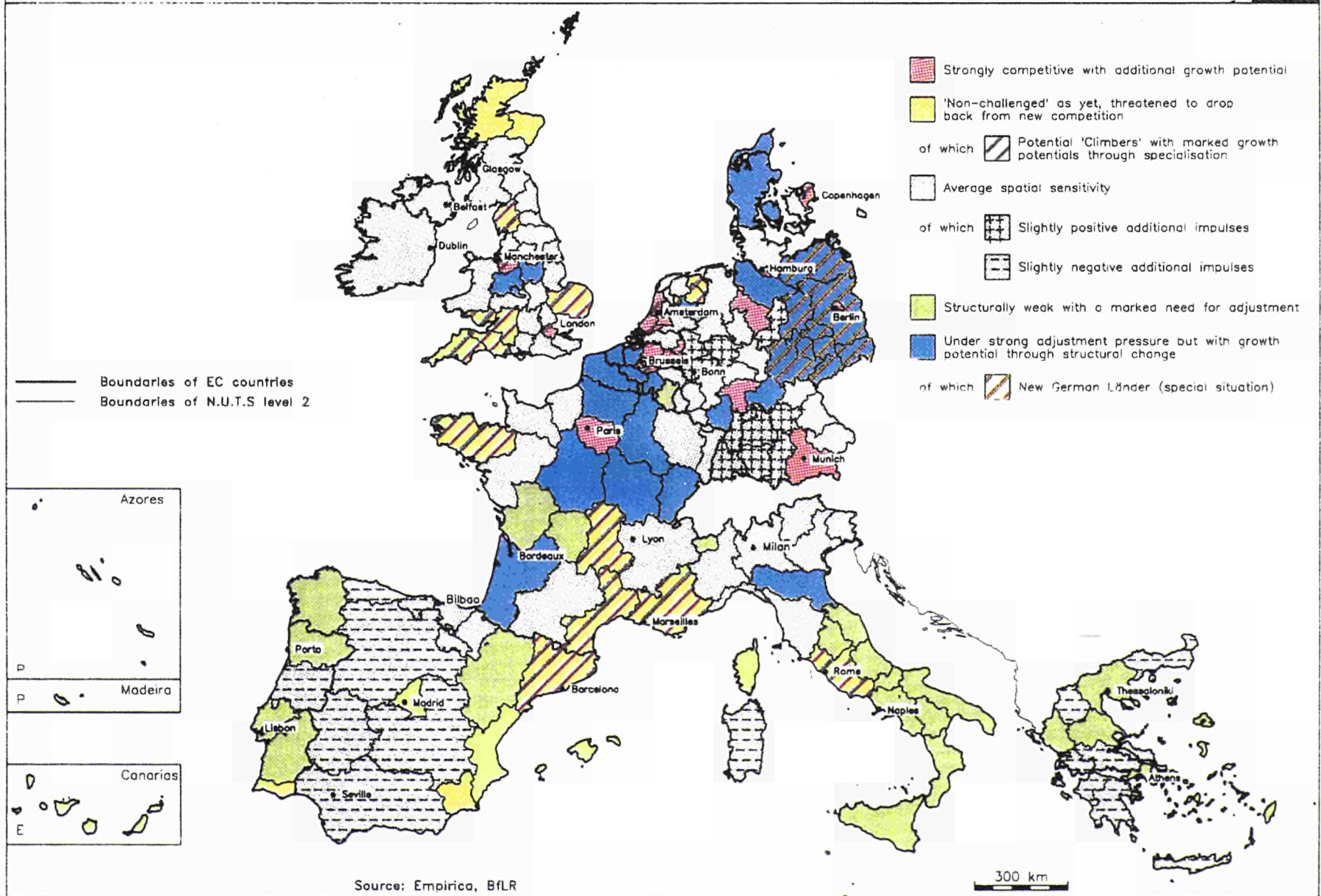
The colouring/markings signifies the following:

- Grey: Average spatial sensitivity.
- Grey: Experiencing slightly negative additional impulses.
- Grey: Experiencing slightly positive additional impulses.
- Green: Structurally weak type of region with a marked need for adjustment.
- Blue: Type of region under strong adjustment pressure but with growth potentials through structural change.
- Blue-brown-striped: New German *Länder* (special situation).
- Yellow: As yet non-challenged type of region, threatened with dropping back from new competition.
- Yellow-mauve-striped: Potential climber regions with marked growth potentials through specialization.
- Red: Strongly competitive type of region with additional growth potentials.

The mauve-striped zone should designate the potential climbers, which are likely to profit most from the developments in Central and Eastern Europe. For, whereas the red-zone group is already strongly specialized (services centres, research and innovation metropolises like Greater London, Brussels, Ile de France are in this group), the mauve-striped group shows only an average degree of interpenetration. Consequently, if regions of this group respond to the new challenges by forcing specialization they are likely to receive the strongest additional impetuses to growth (shifting rightward along the diagonal).

⁴¹ The following observations are significant to avoid misinterpretation of the map: owing to the well-known demarcation problems with regions at NUTS-2 level there are 'statistical outliers': the very small regional entities (e.g. Hamburg, Bremen, Berlin, Utrecht) may have been overrated as regards their response potentials since they, in fact, comprise only conurbations. The response potential of the new *Länder*, in contrast, should be higher than the statistical ex-post analyses indicate (data from 1990 and 1991). At least in the medium term one may assume that their economic strength will grow sufficiently to allow them to move into the blue or green-blue zone. This would still leave them among the structurally weak regions but would rank them among the group of other traditional industrialized and/or rural regions of the Community.

Map 50
Types of regional sensitivity in the European Community



A special position is held by the regions of the yellow zone: while their response potential deviates more strongly from the Community average than the degree of their interpenetration, the differential is attributable to their extremely low degree of interpenetration with Central and Eastern Europe rather than to an above-average economic strength. Map 50 shows that a large number of these regions are typical tourist locations⁴² (e.g. Canaries, Algarve, Azores, Corsica). The low degree of interpenetration should therefore be essentially ascribable to their low economic sensitivity. Indeed, the tourist sector in Central and Eastern Europe currently presents no serious competition for the Community's tourist locations either in terms of economic importance or — even more so — in terms of quality standards. This implies that the yellow-zone group must maintain or strengthen their specialization advantage (quality, niches) in the medium term lest they sag into the grey – zone of competitively weaker regions,⁴³ when competition from tourist locations in Central and Eastern Europe will have grown as is anticipated (see also Chapter 2: extremely high expectations are placed in tourism by Bulgaria and Romania, for example).

The true problem regions of the Community in the medium term under the conditions of the opening of Central and Eastern Europe are those marked green and blue in the diagram. Because of their very low competitiveness and their — in relative terms — higher degree of interpenetration (response potential has a lower value than interpenetration) they are likely to be exposed to the heaviest additional adjustment pressure resulting from the developments in Central and Eastern Europe. Owing to their structural weaknesses (lack of economic dynamism, population decrease, high unemployment) plus a monostructured economy similar to that in vast parts of Central and Eastern Europe, these regions are particularly threatened in the medium term. Unless they succeed in substantially improving their competitive position they will become the main losers from the East-West opening. It was shown in Chapter 2 that many of these regions are protected against direct competition from the East European producers (by the common agricultural policy, coal and steel policy, etc.), however, it is foreseeable that indirectly the pressure to adjust will increase (see dispute about subsidies/quotas between the

EC, Poland, Hungary and the former CSFR). These regions are likely to suffer further employment losses, weakening of the economy and emigration.

It is true though that the potential loser regions (green and blue zones, blue-brown striped zones) are not all alike as regards future perspectives. While the green-marked regions would only move up into the grey-marked zone of likely losers (grey –) even if their response potential improved, the blue-marked regions may expect more favourable perspectives as regards their future. Provided that they manage to raise their competitive strength through structural change they might attain the zone (grey +++) of those regions which may expect additional, even though slight, impulses for growth from Central and Eastern Europe.

The regions of the blue-marked zone include the new German *Länder* (Mecklenburg-Western Pomerania is a mixed type of green and blue). However, to get out of the group with the greatest risk potential, they would have to undergo tremendous growth processes in the next few years, far above the average required of the other regions of the blue-marked zone. It seems rather doubtful whether this will be possible in the medium term considering the prevailing serious crisis of structural change and numerous unsolved problems and bottlenecks (environmental degradation, infrastructural deficiencies, see also Part II of the study). On the contrary, it is rather to be feared that the new *Länder's* relative locational advantage will wane as the relatively advanced countries in Central and Eastern Europe make economic progress, that they will lose out on foreign investment, for instance, which will go to Poland, the Czech Republic and Hungary instead.

The Greek regions are among the grey-marked zone of likely losers (grey –) or even among those marked green which are likely to be exposed to strong additional pressure. The regions along the possible development axis (Thessaloniki-Sofia) as well as major seaport locations, however, may experience some growth impulses from the increasing degree of interpenetration, especially between Bulgaria and Greece which is to be expected in the medium term, provided they improve their competitive strength.

⁴² Exceptions are Madrid and Valencia as well as highlands and islands which are included in the yellow group but which are characterized by features other than tourism.

⁴³ Madrid and Valencia, in contrast, would move up to the growth/climber regions if interpenetration increased.

6. Summary and conclusions

In an effort to summarize the findings of this report, the following map displays a joint picture of the main spheres of impact analysed in the preceding chapters.

These are:

- (i) major types of medium term interpenetration and response potential of the Community territory;
- (ii) the most relevant present and future transport corridors affecting spatial developments in the Community;
- (iii) types of region in Central and Eastern Europe, crisis areas and major traffic roads;
- (iv) external border areas of the Community and their interpenetration

As can be seen from the map, several main categories of impact can be discerned (see Map 51).

Critical regions are:

Green: Structurally weak type of region with a marked need for adjustment.

Blue: Type of region under strong adjustment pressure but with growth potentials through structural change, with

Blue-brown-striped: New German *Länder* (special situation)

In general, it becomes apparent from the analyses presented in this report that the less-favoured regions of the Community benefit the more from

the opening of Central and Eastern Europe the further the process of mutual exchange is pushed forward. While at an early stage of this process mostly the central and well-off regions take advantage, in a phase of pronounced integration, the depressed and less developed regions of the Community are likely to experience positive effects, too.

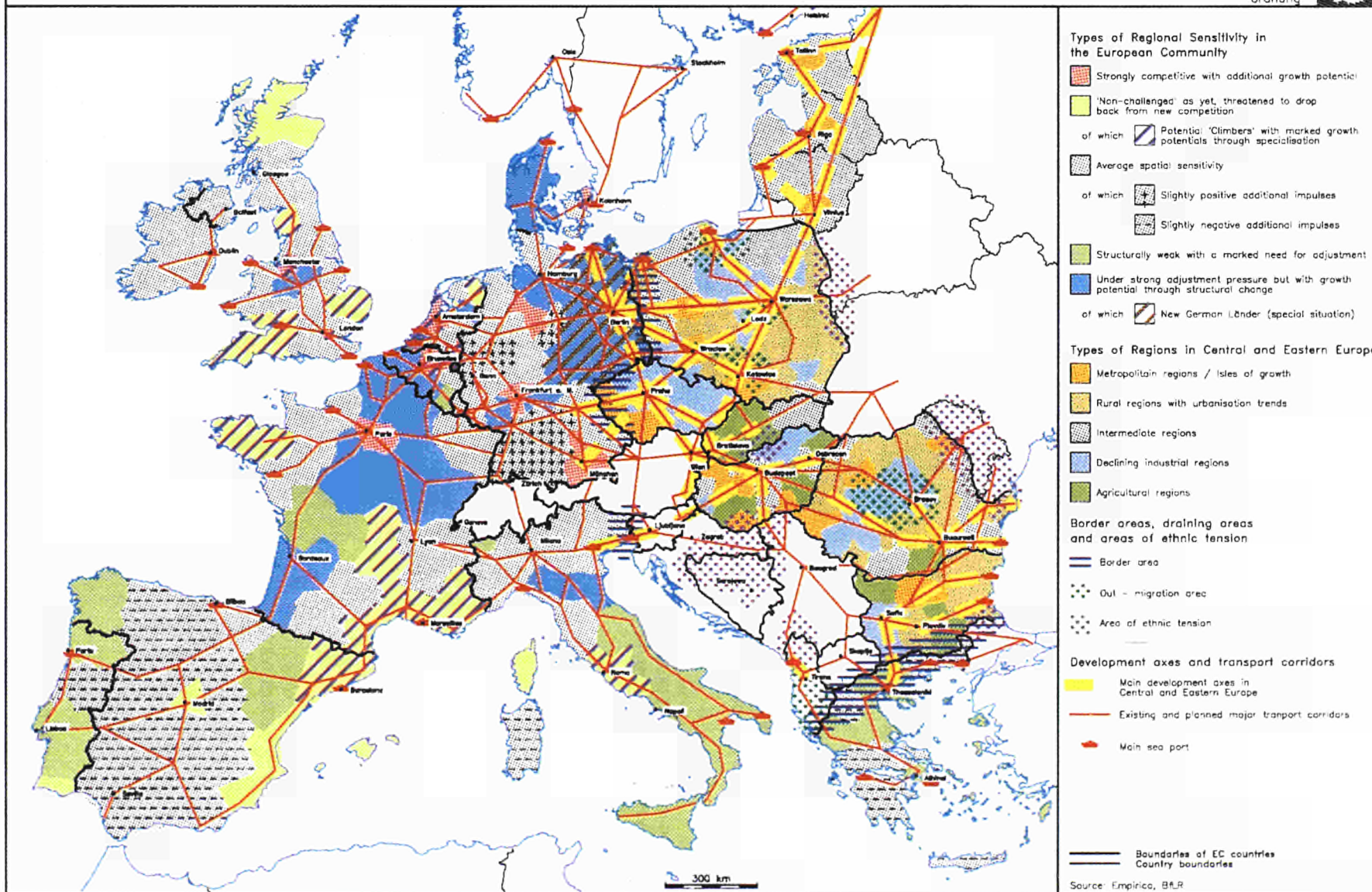
Regions under adjustment pressure are mostly large parts of Portugal, Spain, south Italy, the Greek regions. In these regions structural change needs to be accelerated. Regional policy offers the means to achieve this. The new German *Länder* are in a special situation.

The potential loser regions (green and blue zones, blue-brown striped zones) are not all alike as regards future perspectives. The green-marked regions would move into the grey-marked zone of likely losers (grey -) if their response potential improved. The blue-marked regions may expect more favourable perspectives as regards their future. Provided that they manage to raise their competitive strength through structural change they could join those regions which may expect additional, even though slight, impulses for growth from Central and Eastern Europe.

The regions of the blue-marked zone include the new German *Länder*. However, to get out of the group with the greatest risk potential, they would have to undergo growth processes, far above the average required of the other regions of the blue-marked zone.

The Greek regions are among the grey-marked zone of likely losers (grey -) or even among those marked green which are likely to be exposed to

Map 51
Types of regional sensitivity



strong additional pressure. The regions along the possible development axis (Thessaloniki-Sofia) as well as major seaport locations, however, may experience some growth impulses from the increasing degree of interpenetration especially between Bulgaria and Greece which is to be expected in the medium term, provided they improve their competitive strength.

To avoid massive immigration the EC has a vested interest to contribute to economic development in Central and Eastern Europe. Moreover, the enormous market potential of a pan-European economic space can only be realized if purchasing power in Central and Eastern Europe increases in substantial terms.

The migratory pressure on the Community territory emanating from Central and Eastern Europe will remain an urgent problem over the next 10 to 15 years.

Even without additional conflicts and crises from the western parts of the former Soviet Union at least six million emigrants are expected, around three million of them would go to the EC, approximately one million to Israel and two million to other Central and East European countries (mainly Hungary, Poland, the Czech Republic and Slovakia) on a permanent or temporary basis.

It is estimated that by the year 2010 around 1.75 million migrants from Central and Eastern European countries (excluding the former Soviet Union and former Yugoslavia), will enter the EC, provided that present ethnic tensions do not intensify or spread. This estimate includes approximately 250 000 ethnic Germans and 150 000 Greeks. Of the remaining 1.35 million potential migrants around one third would probably come from Romania, one quarter respectively from Bulgaria and Poland and only a small proportion from Hungary, the Czech Republic and Slovakia.

A reduction of the migration potential can only be expected if the disparities between the East and West are removed and the catching-up process is accelerated.

The expected growth of traffic-related burdens presents the affected regions with great problems.

Considering the rise in trade, transport and traffic volumes between the EC and the countries of Central and Eastern Europe since the beginning of the reform processes, the most likely assumptions are that:

- (i) Transport flows on the road will increase five-fold up to 2010 compared with the first half of 1992 (exports from the EC) and 3.5 fold (imports into the EC).
- (ii) Transport flows on the rail will rise four-fold (exports from the EC) and 2.5 fold (imports into the EC) by 2010 compared with the first half of 1992.

The few existing transit routes between the East and West will remain completely overloaded in the medium term if the appropriate measures for tackling transport bottlenecks are not taken. It is essential, however, that transport planners pay special attention to ecological requirements. This applies not only to goods transport (combined traffic) but also to passenger transport (high-speed rail networks). New transport corridors could lead to the creation of new centres of growth. The impact on the respective transit regions is, however, very much dependent on their response potentials.

Ecological improvements can be expected if there are drastic restructuring and renewal programmes in Central and Eastern Europe. Here improvements can come about through new environmental technologies, appropriate infrastructure projects and ecologically acceptable energy concepts.

Examples include measures to reduce the salination of rivers due to waste water from coal mines, which severely damages water pipes and from industrial facilities. For instance, clean-up measures could be drawn up to reduce permanent damage to the Vistula, which, where it flows past Krakow, has a salt concentration almost as high as that of the Baltic Sea. Similar improvements can be expected on the basis of existing strategies for cleaning up the Elbe, Oder and Danube. Ecological lasting crisis areas in which structural and environmental problems are often compounded, and which have only a marginal degree of interpenetration with the West, will hardly be capable of overcoming their environmental problems in the foreseeable future.

While the external border areas of the Community will not all feel equally the effects of growing East-West interpenetration and cooperation/competition from across the frontier, they will generally be more affected than other regions. They are exposed to heavier environmental burdens from

the increasing volume of traffic, at the same time the positive effects from the reduction of SO₂ and other pollutants (in rivers) will be felt earlier and more immediately than in remoter regions.

Another decisive prerequisite is close international cooperation. In the light of steep increases of transport in the main transit regions, new concepts to master the substantial transport volume need to be developed. The present emphasis on road transport can by no means contribute to tolerable environment conditions.

The Community is in need of regional policy for sensitive regions coupled with concerted actions for economic growth in Central and Eastern Europe.

In the long run, only if structural policies succeed in improving the response potentials of sensitive regions will the benefits of the opening of Central and Eastern Europe outweigh the risks for the Community.

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Annex

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Table 1: Overview on reform measures in Central and Eastern Europe (November 1992)

	Poland	Hungary	Czech Republic and Slovakia	Bulgaria
Price liberalization	<ul style="list-style-type: none"> - nearly all prices liberalized - 90 to 95% of retail prices deregulated - price controls still effective for energy, rent and public transport 	<ul style="list-style-type: none"> - 90% of prices deregulated 	<ul style="list-style-type: none"> - nearly all prices excluding energy liberalized 	<ul style="list-style-type: none"> - Liberalized prices except for electricity, fuels, basic foodstuffs
Banking system/ capital market	<ul style="list-style-type: none"> - new banking laws - central bank and commercial banks - no capital market so far - creation of stock exchange 	<ul style="list-style-type: none"> - three new banking laws - central bank and commercial banks - no investment banks or development banks so far - Budapest Stock Exchange set up 1992 (first in Central and Eastern Europe) 	<ul style="list-style-type: none"> - separation of central bank from the commercial banks in 1990 - capital market is in initial stage, securities exchange set up in Prague in late 1992 	<ul style="list-style-type: none"> - reform of banking system started in 1992 (new law of June 1992) - internal capital market between commercial bank
foreign trade liberalization	<ul style="list-style-type: none"> - free trade except in sensitive products (armament industry) - new customs tariffs for imports (0-45%) 	<ul style="list-style-type: none"> - 90% of imports and 60% of export free from restrictions - foreign trade regulations (quotas etc.) apply to 40% of consumer goods 	<ul style="list-style-type: none"> - liberalized trade laws, free trade except in key items - temporary import tax (20%) after devaluation 	<ul style="list-style-type: none"> - Liberalization of trade laws, no foreign trade regulations / barriers - EC tariff preferences recently introduced (most liberal foreign trade law in Central and Eastern Europe)
Convertibility	<ul style="list-style-type: none"> - limited convertibility between Poland, Hungary, the Czech Republic and Slovakia - internal convertibility of Zloty - substantial progress towards full convertibility 	<ul style="list-style-type: none"> - limited convertibility between Hungary, Poland, the Czech Republic and Slovakia - internal convertibility of Forint - Domestic firms entitled to hold hard currency accounts 	<ul style="list-style-type: none"> - limited convertibility between the Czech Republic and Slovakia and Poland and Hungary - one common commercial and tourist exchange rate - internal convertibility - as of 1 January 1993 fixed exchange rate between the Czech Republic and Slovakia 	<ul style="list-style-type: none"> - right to hold and trade Western currencies - since 1991 single exchange rate for all transactions
Foreign direct investment	<ul style="list-style-type: none"> - new investment legislation - joint ventures and 100% foreign participation possible - legislative and political guarantees for foreign investors 	<ul style="list-style-type: none"> - foreign investment legislation further deregulated - strong investment activity by foreign enterprises - foreign share of equity capital up to 100% permissible 	<ul style="list-style-type: none"> - equal treatment of domestic and foreign investors (de facto freedom of establishment as in the European Community) 	<ul style="list-style-type: none"> - liberal foreign investment law adopted in 1992 - 100% foreign participation, full repatriation of profits possible - high tax rates

	Poland	Hungary	Czech Republic and Slovakia	Bulgaria
Privatization	<ul style="list-style-type: none"> - plan for mass privatizations tabled (protests from the population) - auctioning of small enterprises - large-scale privatization mainly through winding-up/re-establishment of enterprises - preferential conditions for staff members - national treasury, voucher-system (population can acquire vouchers for 20 investment funds) 	<ul style="list-style-type: none"> - August 1992: holding for State-owned enterprises; - 'spontaneous' privatization by companies or investors, - active privatization by privatization agency, numerous joint ventures 	<ul style="list-style-type: none"> - law of May 1992 on large-scale privatization - 40% of State-owned enterprises are sold directly (for example, Skoda), - auctioning or long-term leasing of more than 2 000 SMEs - since October 1992 distribution of vouchers by finance ministry, - restoration of property to former owners 	<ul style="list-style-type: none"> - May/July 1992: law on privatization, - establishment of a privatization agency, - auctioning of 90% of all State-owned enterprises planned, - free-of-charge distribution of vouchers among the population planned
Social safety net	<ul style="list-style-type: none"> - unemployment benefits - social aid - establishment of institutional system, large support by churches 	<ul style="list-style-type: none"> - unemployment benefits - training and qualification programmes - social security benefit legislation expected for 1992 	<ul style="list-style-type: none"> - unemployment benefits - retraining and further training measures - social aid to pensioners and socially weak groups 	<ul style="list-style-type: none"> - unemployment benefits - old-age pensions, maternity allowance, sick pay (financed from public budgets and company contributions)
	Romania	Estonia	Latvia	Lithuania
Price liberalization	<ul style="list-style-type: none"> - price reform likely to be completed in late 1992 with liberalization of basic foodstuffs, rents and energy 		<ul style="list-style-type: none"> - generally deregulated prices except for staple foodstuffs, energy, raw materials and alcoholic drinks (ration cards for some products) 	
Banking system/ capital market	<ul style="list-style-type: none"> - banking laws, but restructuring process hardly started - trade in foreign currencies among banks is possible 		<ul style="list-style-type: none"> - introduction of national currencies (Estonian Crown, Lithuanian Lit, Latvian Lat) planned. Latvia has made greatest progress. Provisional means of payment: coupons) 	
Foreign trade liberalization	<ul style="list-style-type: none"> - liberalization started in October 1991 - certain goods are subject to quantitative restrictions to protect the domestic market 		<ul style="list-style-type: none"> - since 1 May 1992 free trade area between the Baltic States 	
Convertibility	<ul style="list-style-type: none"> - One single exchange rate - Since Nov. 1991, internal convertibility of the Leu 		<ul style="list-style-type: none"> - no convertibility so far 	

	Romania	Estonia	Latvia	Lithuania
Foreign direct investment	<ul style="list-style-type: none"> - legal framework established - 100% participation possible - acquisition of real-estate not allowed 		<ul style="list-style-type: none"> - allowed to participate in privatization process without any limitations 	
Privatization	<ul style="list-style-type: none"> - privatization legislation passed, - staff can acquire 10% of enterprise - privatization steps: <ol style="list-style-type: none"> 1. 45% remain State-owned 55% transformed into State-owned stock companies 2. sale of shares to public - sale of SMEs by auction (to nationals and foreigners) planned 	<ul style="list-style-type: none"> - creation of legal basis, - establishment of State trust agency (privatization agency) - one-third of small enterprises are privatized, - restoration of property or compensation to former owners (effective in all three states) 	<ul style="list-style-type: none"> - legislation not yet passed, - small-scale privatization underway - privatization via vouchers is planned: 80% of State-owned enterprises shall be privatized 	<ul style="list-style-type: none"> - laws and regulations passed, - staff member have right of priority to purchase shares, - since August 1992 114 State-owned enterprises (in service sector) sold by auction, - distribution of vouchers to population, - participation in investment funds is possible
Social safety net	<ul style="list-style-type: none"> - unemployment benefit funds - no social insurance or pension funds system 		<ul style="list-style-type: none"> - laws on social safety of workers passed 	

Source: empirica.

Table 2: Road and rail network

	Road density (km/km ²)	Motorway proportion (km/km ²)	Car density (passenger car/km)	Rail density (km/1 000 km ²)	Freight density on rail (million net tkm)
USSR	0.04	-	-	8.50	25.94
Poland	1.00	0.06	18.80	76.73	3.48
Yugoslavia	0.48	0.78	28.22	37.10	2.44
GDR	-	-	-	129.55	4.20
CSFR	0.58	0.72	44.02	102.80	6.49
Hungary	0.32	1.77	55.30	84.17	2.14
Bulgaria	0.28	0.88	41.00	36.76	3.29
USA	0.54	1.23	32.23	20.58	7.83
FRG	1.04	3.43	119.23	108.41	2.80
Italy	1.01	2.04	-	53.22	1.33
UK	0.92	1.42	95.88	69.34	0.83
France	0.71	1.37	80.70	62.28	1.56
Spain	0.64	0.75	35.38	24.89	0.92
Netherlands	1.37	3.69	98.70	68.50	1.10
Denmark	1.65	0.91	22.49	54.42	0.74
Ireland	1.27	0.04	8.91	27.66	0.30
Greece	0.48	0.14	25.33	18.83	0.26
Portugal	0.10	3.34	268.24	33.96	0.51
Luxembourg	1.07	2.81	68.90	104.80	-
Belgium	0.51	10.34	247.80	114.02	2.45

Source: UN 1992.

Table 3: Basic indicators of Central and East European countries

	Poland	Hungary	Czech Republic and Slovakia	Bulgaria	Romania
Output (GDP/NMP)* (% change)					
1989	0.0	-0.4	0.7	-0.4	-5.8
1990	-11.6	-3.3	-1.1	-11.8	-7.4
1991	-9.0	-10.0	-16.0	-17.0	-14.0
*Net material product for Bulgaria and Czechoslovakia prior to 1991.					
Industrial production (% change)					
1989	-0.5	-1.0	1.1	-1.1	-2.1
1990	-24.2	-9.2	-3.7	-16.8	-19.0
1991	-11.9	-19.0	-21.2	-27.8	-18.7
Employment (whole economy) (% change)					
1989	0.6	-0.9	0.3	-2.3	1.1
1990	-3.6	-2.0	-0.4	-6.1	0.2
1991	-5.5	-6.0	-7.4	-14.5	-11.6
Unemployment (% change)					
1990	5.89	1.26	0.85	1.18	0.65
1991	9.45	6.43	5.81	7.58	1.84
I/92	11.60	7.57	5.58	8.19	3.69
II/92	12.00	8.65	4.71	8.61	
Labour productivity in industry (% change)					
1989	-0.5	0.7	1.7	2.1	-3.9
1990	-19.5	-0.4	-0.3	-8.6	-18.5
1991	-4.9	-10.2	-14.4	-10.9	-9.2
Nominal wages (% change)					
1989	291.8	17.9	2.3	8.8	4.0
1990	398.0	28.6	3.6	31.5	10.5
1991	71.9	27.2	16.4	152.8	333.7
Consumer price index (% change)					
1989	251.1	17	1.0	5.6	0.9
1990	585.8	28.9	10.0	23.8	7.4
1991	70.3	35	57.9	338.5	444.5
1992	> 70*	35'	> 30'	75*	250*
* estimated; first half 1992.					
Real wages (% change)					
1989	9.0	1.9	1.3	3.0	3.1
1990	-24.4	-5.1	-5.8	6.2	2.9
1991	0.8	-8.0	-26.3	-42.3	-20.3
External debts (million USD)					
Total debt 1990	49 386	21 316	8 231	10 927	369
Total debt 1991*	46 000	19 700	8 800	11 000	2 100
* Other concept than World Bank, see DIW 1/92.					
Income per capita*					
1989 in 1 000 USD	4.6	6.1	7.9	5.7	3.4
EUR 12 = 100**	32.4	43.0	55.6	40.1	23.9
* In purchasing power parity to current prices based on GDP, see DIW 15/92.					
** Income per head EUR 12 (1989): 14.2 USD.					
Foreign trade with Western countries (% change)					
1990 Exports	30.7	21.4	13.0	-12.3	-30.2
Imports	-7.8	4.2	27.6	-25.9	96.1
1991 Exports	18.8	23.7	10.6	-49.7	13.8
Imports	80.9	34.9	-6.6	-68.6	-2.4

Sources: OECD 1992c, EC 1992d, WIW 1992, DIW various issues, empirica Regional Monitor.

Table 3a: Macro-economic indicators of the Czech Republic and Slovakia (1990-92)

	Czech Republic	Slovakia
Area (km ²)	78 864	49 035
Population (millions)	10.6	5.1
Nationalities (%)		
– Czechs	94.0	1.2
– Slovaks	4.1	86.6
– Hungarians	0.2	10.9
– Others	1.7	1.3
GDP (billion USD)	24.9	9.9
Unemployment (%)		
1990	0.65	1.26
1991	3.7	10.0
II/1992	2.37	9.35
Decrease in industrial production (February 1992/February 1991) (%)	– 31.0	– 17.1
Inflation first half 1992 (%)	11.5	12.5
Foreign direct investments (January-June 1992) (million USD)	358	90
Trade surplus (January-June 1992) (million USD)	27.8	4.8

Source: empirica, Regional Monitor.

Table 3b: Macro-economic indicators of Albania (1990-92)

Total population (millions)	1985	3 050
	1989	3 182
	1990	3 388
Population increase (%)	1985-90	11.1
Population density (inhabitant/m ²)	1969	71.9
	1990	117.9
Social product* (1980 = 100)	1985	110.5
	1990	113.5
Material input* (1980 = 100)	1985	112.1
	1990	117.6
National income* (1980 = 100)	1985	108.2
	1990	107.6
Unemployment (%)	1990	1.92
	1991	3.94
	II/1992	350-400 000 **
Total employment (1980 = 100)	1985	115.9
	1989	127.8
	1990	126.9
Female employment (1980 = 100)	1985	117.6
	1989	130.0
	1990	124.6
Employment by branches of economic activity (% of total employment)	1980	1990
– industry	21.4	23.7
– construction	8.7	6.6
– agriculture	49.8	47.0
– services/others	20.1	22.7

* At 1986 prices.

** Total number estimated, July 1992.

Source: empirica, Regional Monitor.

Table 3c: Macro-economic indicators of Slovenia (1990-91)

	Unit	1990	1991*
Population	million	1 998	1 962
Unemployment rate	%	4.7	8.2
GNP	billion USD	17.4(a)	10
Change	%	– 8.3	– 12
Structure of production	GDP share (%)		
Agriculture, hunting, forestry	%	4.7	
Mining	%	1.0	
Processing industry	%	29.8	
Electric energy, gas and water supply	%	2.6	
Construction	%	4.3	
Trade	%	10.9	
Hotels and restaurants	%	2.3	
Transport and communication	%	6.5	
Financial services	%	4.5	
Premises, renting and business services	%	10.3	
Public service, social insurance	%	3.1	
Education	%	3.6	
Healthcare and social welfare	%	4.8	
Inflation	%	104	247
Workers' remittances	million USD	1 584	635
Balance of goods	million USD	– 609	– 285
Exports	million USD	4 118	3 855
Imports	million USD	4 727	4 140
Balance of services	million USD	1 202	636
Exports	million USD	1 085	1 050
Imports	million USD	493	414
Balance of transfer	million USD	– 345	– 451
Exports	million USD	1 394	327
Imports	million USD	1 739	778
Balance of current accounts	million USD	248	– 100
Balance of capital movements	million USD	181	– 64
Foreign debt	bn USD	1.81	1.78
Share of foreign currencies receipts	%		35
Coefficient of debt service	%		15

(a) Based on the official exchange rate, which overvalued the Dinar.

*Preliminary figures and estimations.

Source: Institute for Macroeconomic Analysis and Development, Ljubljana; FAZ: Länderanalyse Jugoslawien; Bayerische Vereinsbank: Slowenien; The Ljubljana International Press Center: Who? Where? What? in Slovenia; ifo Institute for Economic Research.

Table 3d: Spatial indicators of Slovenia (1991)

Item	Unit	1991
Territory	km ²	20 256
Forests	km ²	10 124
Grassland	km ²	5 593
Fields and gardens	km ²	2 471
Orchards	km ²	363
Vineyards	km ²	216
Border length	km	1 207
Austria	km	324
Italy	km	202
Hungary	km	88
Croatia	km	546
Coastline	km	47
Population	1 000	2 002
male	1 000	971
female	1 000	1 031
Density	inhabitant/km ²	99
Biggest Towns	1 000	462
Ljubljana	1 000	276
Maribor	1 000	108
Celje	1 000	41
Kranj	1 000	37
Employed	1 000	748
Unemployed	1 000	75
Transport and Communication		
Modern roads	km	10 331
Railway track	km	1 196
electrified	%	56
Private cars	1 000	565
Telephones	1 000	685
RAIL TRAFFIC		
Passengers	m/km	1 436
Checkpoint Gorizia (Slovakian / Italian border)	1 000	10.4
Checkpoints Trieste (Slovakian / Italian Border)	1 000	277.7
Goods Transport	m/km	4 172
Checkpoint Gorizia (Slovakian / Italian border)	1 000	1 247
Checkpoint Villa Opicina (Slovakian/ Italian border)	1 000	2 420
ROAD TRANSPORT		
Passengers	m/km	6 444
Checkpoints Cividale (Slovakian / Italian border)	1 000	1 118
Checkpoints Gorizia (Slovakian / Italian border)	1 000	8 498
Checkpoints Trieste (Slovakian / Italian border)	1 000	20 175
Goods Transport	m/km	3 440
Road Border Crossings	m vehicles	19
With foreign registration	m vehicles	11
Checkpoints Fernet (Slovakian / Italian border)	1 000	2 131 (b)
Checkpoints Pese (Slovakian / Italian border)	1 000	216 (b)
Checkpoints Rabuiese (Slovakian / Italian border)	1 000	350 (b)
City Transport	m passengers	168
AIR AND AIRPORT TRAFFIC		
Air passengers	m/km	1 554
Airport passengers	m	747
MARITIME AND HARBOUR TRAFFIC		
Maritime transport	1 000 miles	21
Harbour traffic	1 000 tonnes	5 543
Tourists (a)	1 000	1 137
Hotel beds (a)		27 027

Source: Statistical office of the Republic of Slovenia; Republic Slovenia – basic development indicators: The Ljubljana International Press Center: Who? Where? What? in Slovenia; Center for International Cooperation and Development (CICD; Slovenia your economic partner; Reg. Autonoma Friult-Venezia-Giulia; Compendio statistico, ed. 1991; ifo Institute for Economic Research (a) the 'normal' year 1989 as base (b) 1990.

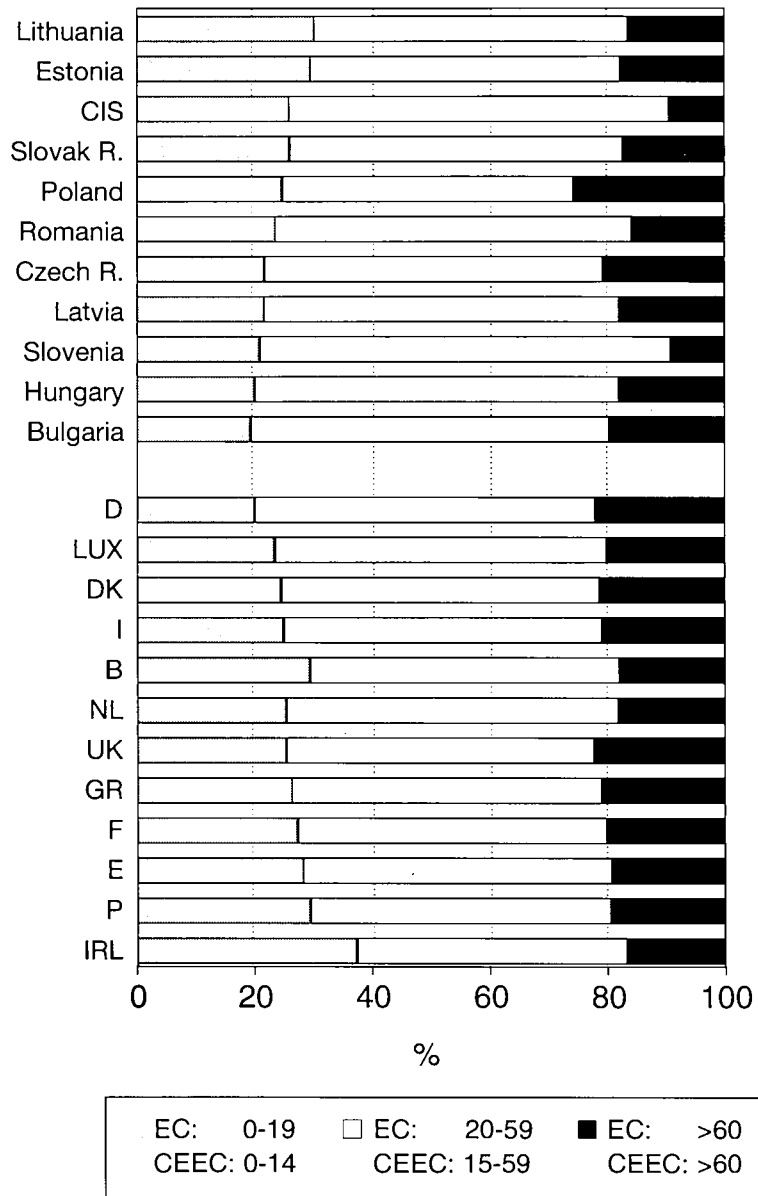
Table 3e: Basic indicators of the Baltic States

	Unit	Estonia	Latvia	Lithuania
Area	km ²	45.2	64.6	65.2
Population 1990	1 000	1.6	2.7	3.1
urban	%	72	71	68
share 15-64 years	%	66	56	66
Employment	1 000	796	1 398	1 860
Non-State-sector	%		22.5	26.0
Unemployment rate	%	0.3	6.0	0.5
Telephones	per thousand	225 (a)	175 (a)	222
Cars	per thousand	123 (a)		128
Real GDP 1991	m constant			
	1990 roubles	7 099	11 225	36 700 (b)
Real GDP 1990 by expenditure:	-	7 977	12 201	13 287
Private consumption	%	64.4	56.5 (b)	62.5 (b)
Government consumption	%	13.2	11.0 (b)	19.5 (b)
Gross fixed investment	%	23.8	27.4 (b)	28.1 (b)
Real GDP 1990 by source				
Industry	%	39.6	42.4	31.7
Agriculture	%	15.6	18.3	27.5
Construction	%	7.1	6.6	10.4
Real GDP growth 1991	% change	- 11.0	- 8.0	176.2 (b)
Real GDP growth 1990	% change	- 8.1	- 3.4	- 6.9
Industry	% change	- 5.1	4.9	- 1.6
Agriculture	% change	- 18.0	- 16.5	- 11.1
Construction	% change	- 21.0	- 0.1	0.2
Government revenue	bn. current roubles	6.6	10.4	16.2
Government expenditure	bn. current roubles	5.8	8.6	15.0
Net foreign assets	m. current roubles	4 730	14 872	20 291
Net domestic assets	% change	162.9	- 101.8	196.6
Industrial production 1990 at constant prices	m. constant roubles	6 670	9 730	11 194
Fuel	%	2.1	0.5	
Electricity	%	5.0	1.7	5.5
Chemical industry	%	7.7	8.2	4.3
Pulp and paper industry	%	1.0	1.2	1.7
Forestry and wood products	%	8.2	4.8	3.8
Machine building	%	17.0	30.7	28.3
Construction materials	%	4.3	3.4	5.8
Textiles, clothing and leather	%	22.0	20.5	25.8
Food industry	%	24.5	27.2	24.8
Total trade balance 1990 (e)	m. current roubles	- 1 394	- 1 714	- 3 520
Exports 1990	m. current roubles	2 068	4 118	4 551
Imports 1990	m. current roubles	3 462	5 832	8 071
Retail price index	% change	105.8	157.5	216.4 (c)
Average monthly wage	Current roubles	586	602 (d)	876 (d)
Minimum monthly wage	Roubles			500

(a) 1990; (b) at current prices; (c) Including services as well as foodstuffs in private stores; (d) Industry; (e) at foreign prices.

Source: IMF: I. Steinbuka: The Baltic States: Estonia, Latvia, Lithuania; Marktwirtschaft: World Bank, Statistical Handbook. States of the Former USSR, 1992, ifo institute.

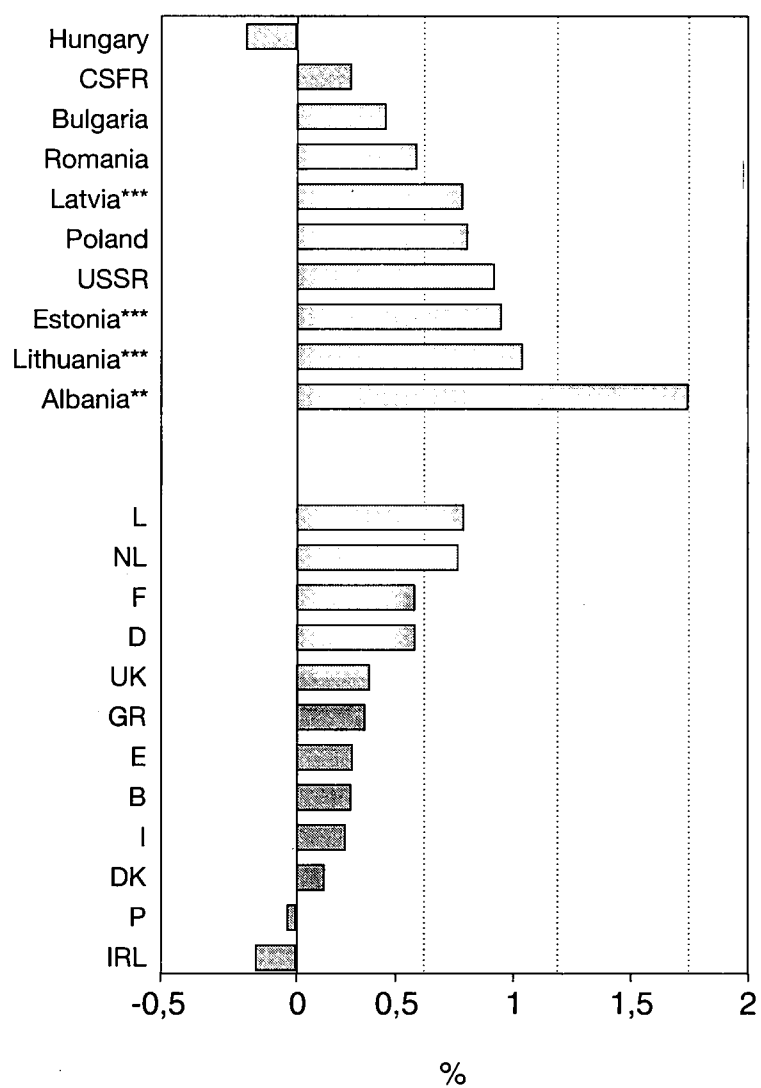
Figure 1: Demographic profile (1990)



Source: empirica, Regional Monitor.

Figure 2: Population growth (1985-90)*

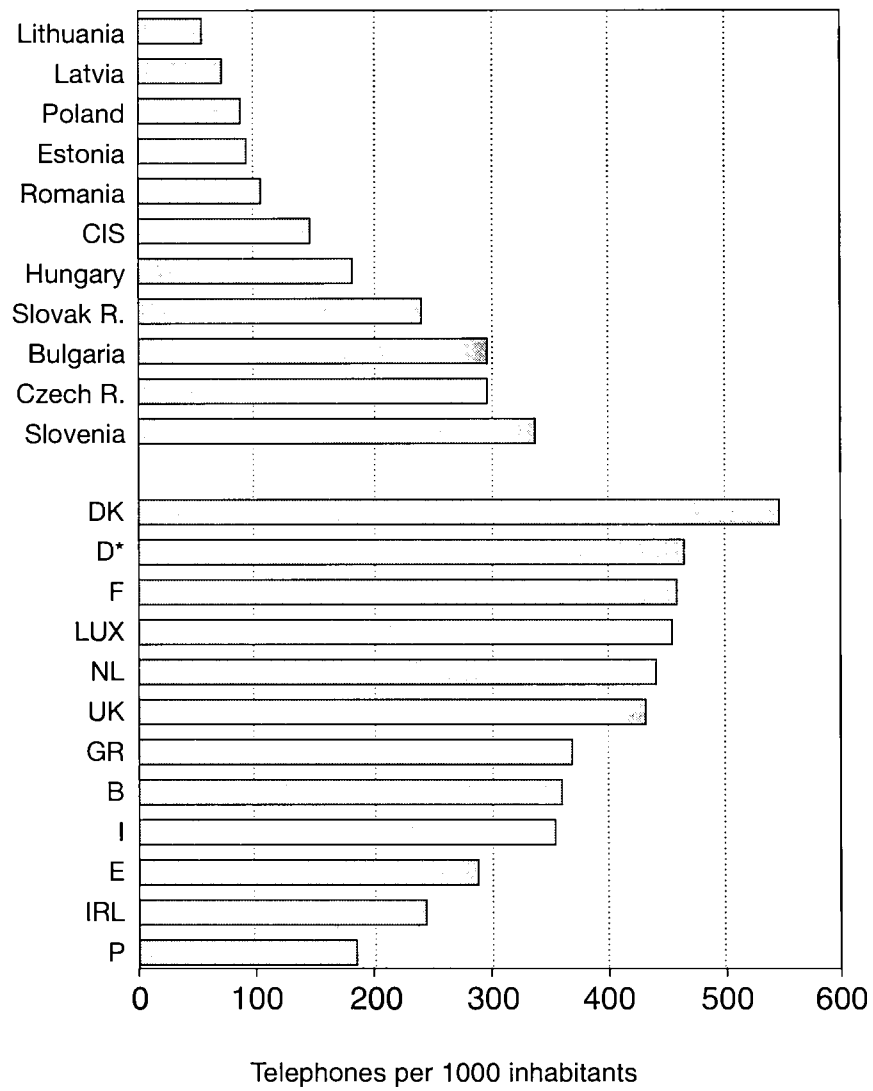
(% per year)



* EC: 1985-89
** 1985-April 1989
*** 1970-90.

Source: empirica, Regional Monitor.

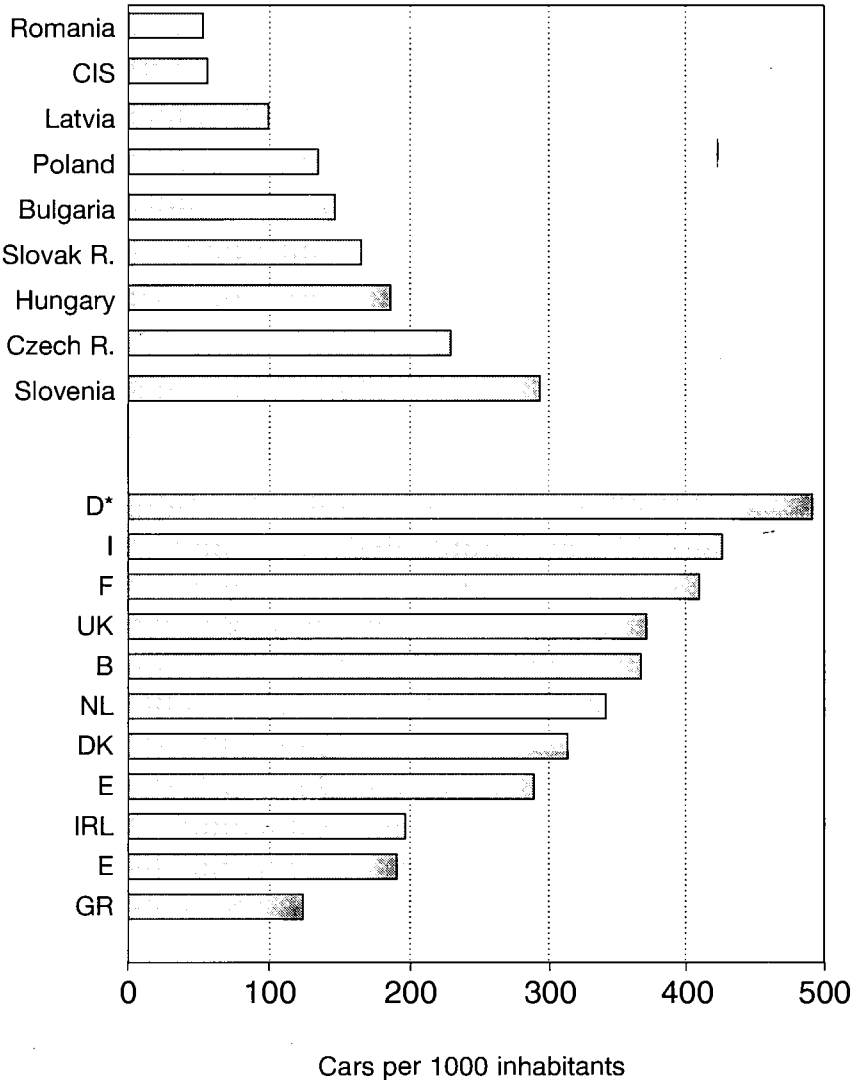
Figure 3: Telephones per 1 000 inhabitants (1990)



* West German Länder.

Source: empirica, Regional Monitor.

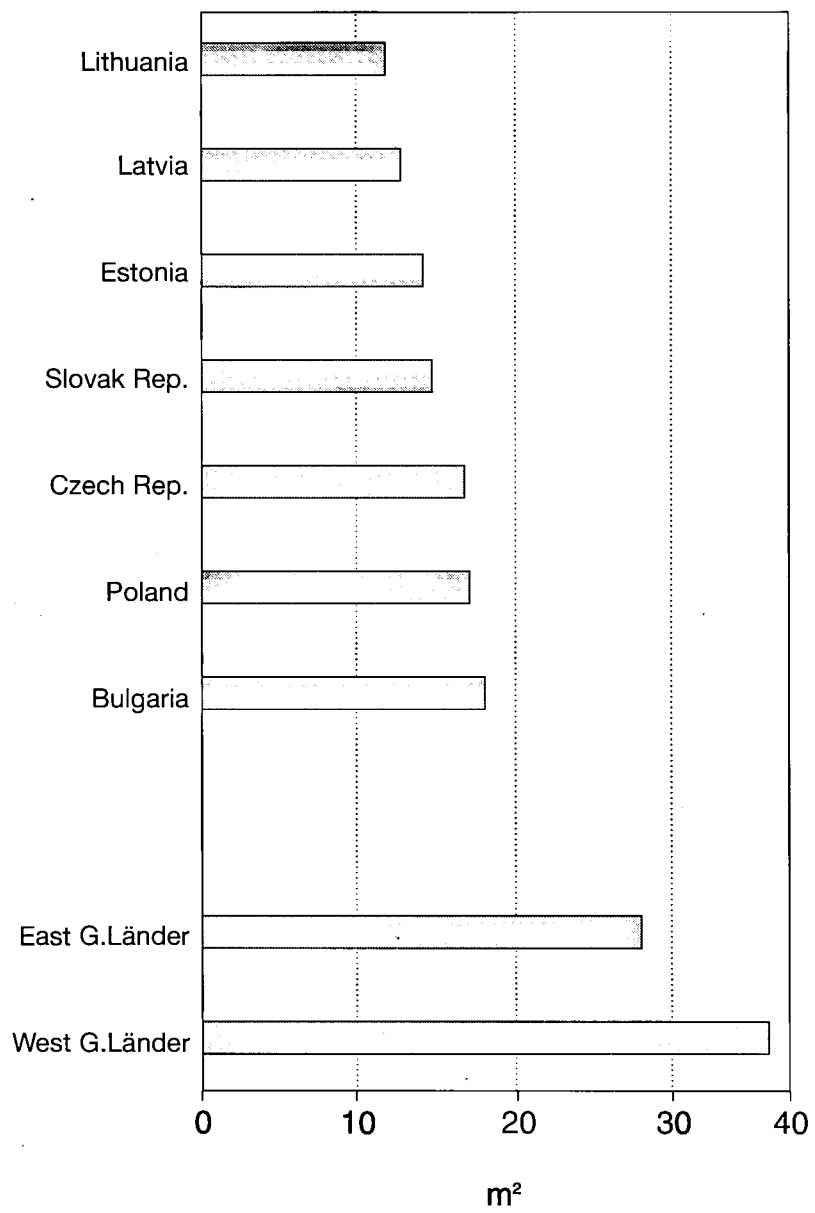
Figure 4: Cars per 1 000 inhabitants (1990)



* West German Länder.

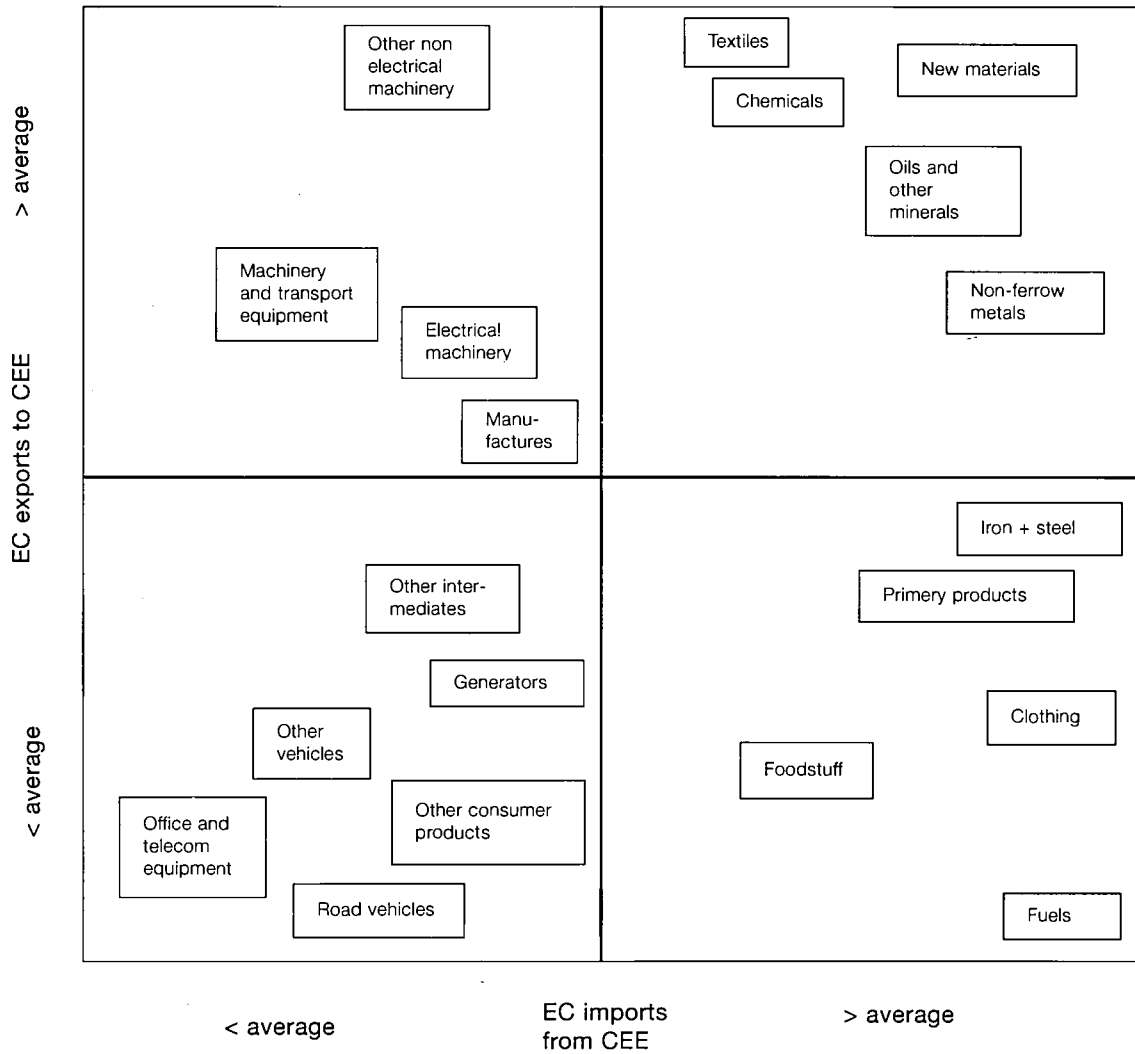
Source: empirica, Regional Monitor.

Figure 5: Average dwelling space in m² per inhabitant (1990)



Source: empirica, Regional Monitor.

Figure 6: Eastern European share of Western European trade broken down by product (1990)



* Above average means that the share of a given branch in EC-CEEC trade (imports/exports) exceeds the share it has in EC total trade.

Source: OECD 1992, empirica.

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