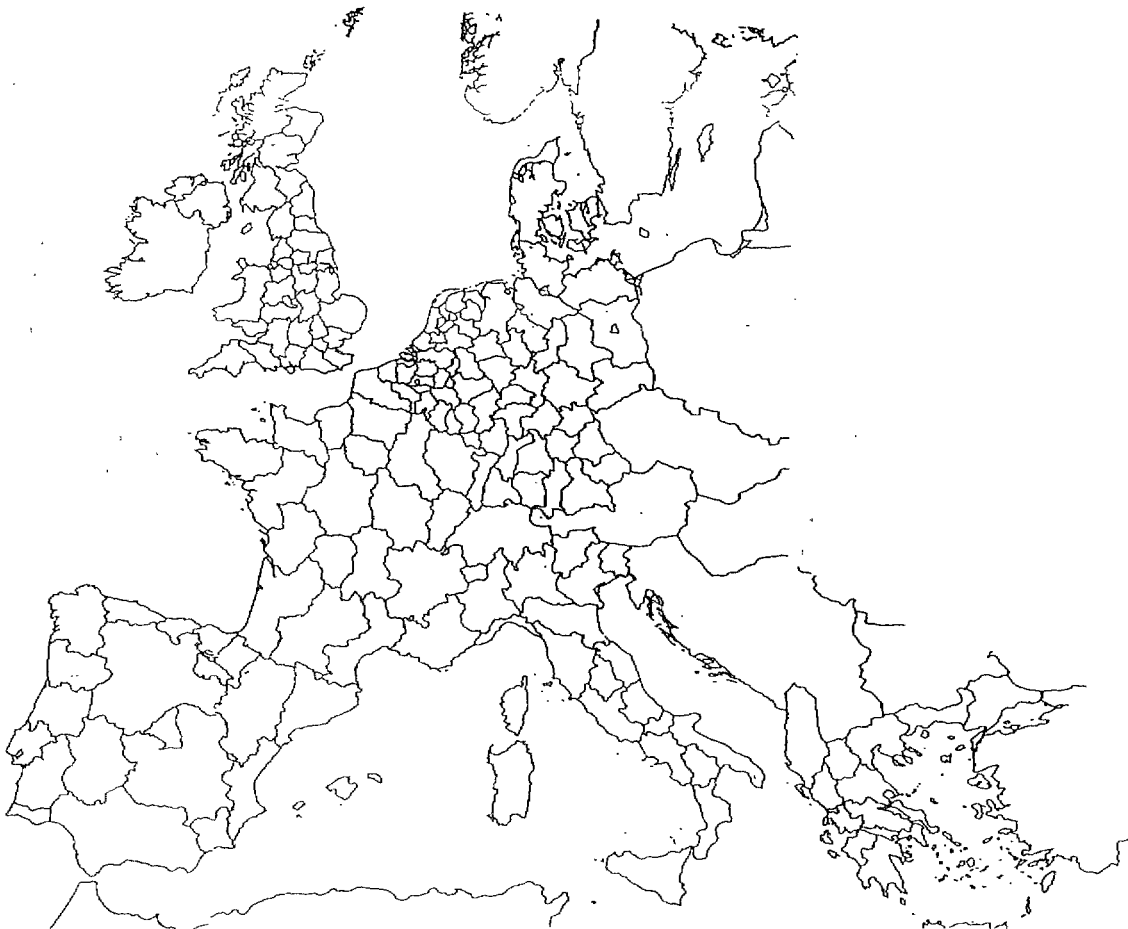


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EUROPE 2000
**Outlook for the Development
of the Community's Territory**



Final text - pre-publication maps

EUROPE 2000

Outlook for the Development of the Community's Territory



FOREWORD

Europe 2000 breaks new ground in considering regional planning at the European level. It raises crucially important issues relating to our objective of seeing that all Community regions get the best possible results from our efforts to increase prosperity through the single internal market and that, in particular, currently disadvantaged regions share fully in that prosperity.

Of course, the Commission has no intention of assuming the planning functions exercised quite properly and effectively in the Member States, whether at national, regional or local level. This is no masterplan for Europe. It is clear, however, that there is a need — as borne out by this report — for more systematic cooperation between regional planners at the Community level and for policies and plans in fields such as transport or energy to be considered from a regional development point of view.

Throughout the Community there is growing interest in the wider European dimension to regional planning. Our economies are drawing ever more closely together and policies and actions are increasingly conceived on a European scale. It makes no sense for planning to stop artificially at national borders. *Europe 2000* is a first effort to provide planners with some of the information they need in a reference framework which is Community-wide rather than national or regional.

Some major infrastructures, such as the high-speed train network, have already begun to be planned on a European scale. But it is not only where major infrastructures are involved that the European dimension needs to be taken into account. Planners in the private sector, as well as public authorities at various levels, need increasingly to be aware of the implications for their decisions of the actions and intentions of their

counterparts in other regions of the Community. They thus need information about developments going on outside their immediate territory.

I should also add that concern about planning at the European level does not end at the Community's external borders. We shall in all probability see a number of new Member States joining before the year 2000 and the Community will also have increasingly close relations with its neighbours who remain outside. Hence the title of *Europe 2000* and not '*EC 2000*'. Our future work will pay particular attention to this wider dimension.

Finally, *Europe 2000* is the start of a process. The Commission will continue to examine the issues which reflect and determine where economic activity takes place in the Community, building on the information gathered here, refining it and periodically bringing the published results up to date. This document is addressed to a wide readership and I hope that readers and users will contribute to our future work. Information and experience are central to good planning: one of the first objectives of *Europe 2000* is to promote the widest possible sharing of both.

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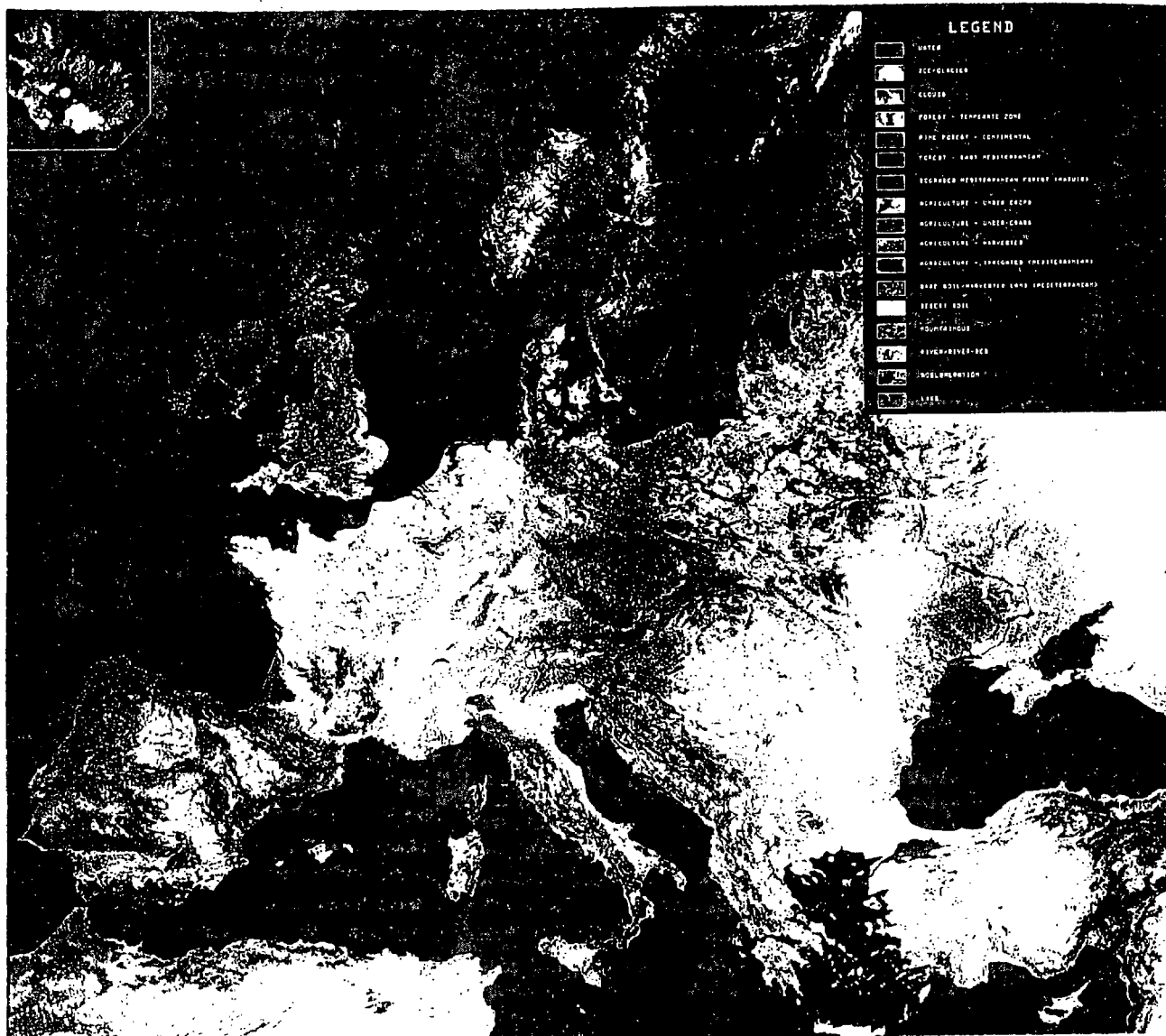
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Snapshot of the European territory : In diverse sectors of human activity information derived from satellite imagery will play a growing role in monitoring the trends shaping our continent. Computerized Geographical Information Systems allow such data to be analysed in conjunction with data coming from more traditional sources to provide a valuable tool for decision-making and information exchange.

Executive Summary

Key Issues : New Developments and their Impact on the Community's Territory

New trends in Europe's economic geography

Looking at the geographical pattern of the Community as a whole it is possible to identify core areas where economic activity is concentrated. It is becoming increasingly clear that the traditional centre of Europe bounded by the triangle of Paris, London, Amsterdam, and including the Ruhr valley, is being complemented by a second important

centre of development extending from the prosperous regions of southern Germany and northern Italy westward to rapidly growing parts of southern France and the areas around Barcelona and Valencia. In the 1990s, this concentration has come increasingly to take the form of two arc-shaped centres of development (Map 1).

The northern development pole is the traditional industrial heartland of Europe. As such it contains areas which have experienced considerable problems associated with the decline of major industries. At the same time, a

notable feature of this area has been its ability to seize opportunities in growing sectors such as financial services and tourism.

The southern development pole contains regions in southern Germany and northern and central Italy which have already attained high levels of income per head. In southern France and northern and eastern Spain, incomes per head are lower but growing very rapidly in Community terms.

In the 1990s, economies of agglomeration will continue

to exert a powerful influence attracting new activities to the major population centres of the traditional northern development pole. Even with modern technological advances, close proximity to suppliers and services remain important determinants of location. Clusters of economic, administrative and political decision-making will continue to attract new firms. At the same time, however, certain important forces for decentralization exist which contain the potential for a more even distribution of activity

and opportunity and which may act as a stimulus to the more peripheral regions where development is lagging behind the rest of the Community.

First, it is clear that the action of the market has encouraged many firms away from high-cost locations in the central areas. Simultaneously, and especially over the past decade or so, firms have introduced flexible production systems in response to a market place characterized by rapidly changing demands and short

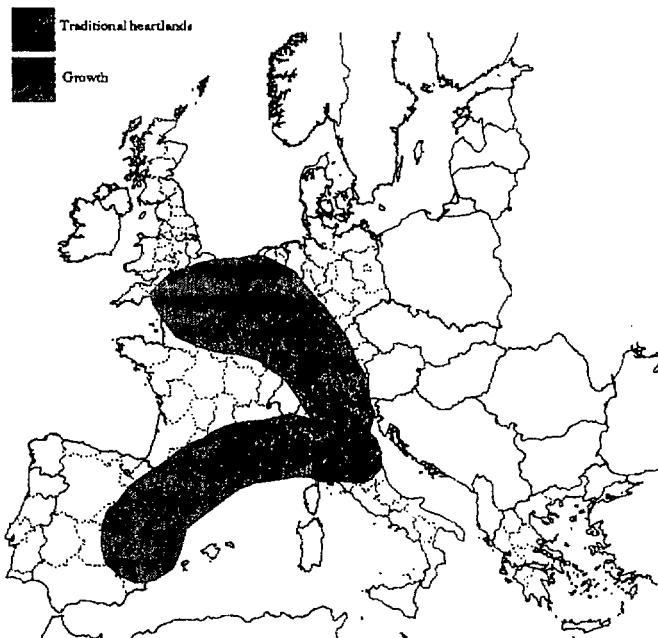
production runs. With reduced scope for economies of scale, there have been increased opportunities for small firms — an important vehicle for new economic activity in less favoured regions.

Secondly, the Community's development poles are generally characterized by an older age structure of population. As this progressively erodes the absolute number and relative share of workers in the prime age-groups, some of the traditional growth centres may lose the productive dynamism of earlier periods to regions where such labour is for the time being more plentiful.

Thirdly, new developments in advanced transport and telecommunications covering the whole of the European territory will change its 'time geography' to the advantage of areas away from the congested centres of activity.

Fourthly, the rising costs of congestion in the central areas of the Community — delays, pollution, etc — are likely to act as an increasingly powerful deterrent to new investment in these areas.

Map 1 Traditional heartlands and growth regions of the Community



For the 1990s, the fundamental question will therefore remain whether the pressures arising from economic and geographical imbalances between the prosperous centres and the rest of the Community will encourage the mobility of economic activity and jobs or, the mobility of labour. Labour mobility, especially on a sufficient scale, is not an effective or desirable means of achieving regional objectives. The depopulation of parts of the Community is not conducive to balanced development. At present, interregional migration is virtually non-existent. On the other hand, there has been a marked increase over time in the geographical mobility of economic activity. It has been estimated that where 70% of employment was tied to its existing location thirty years ago, this has now fallen to 50%.

One important consequence of this is that locational behaviour has become more influenced by factors relating to quality of life, and less resource-driven, than before. This is particularly true of the newer knowledge-intensive activities which recruit a relatively high proportion of well-

paid, highly-qualified professional staff. The residential preferences of these staff, away from the highly-congested metropolitan centres and in favour of areas with features such as an acceptable climate, social amenities and a pleasant natural environment, have become an important influence on firm location. In a more integrated Community the 'sun-belts' of Member-States may be complemented by a European 'sun-belt', so offering new opportunities to the developing regions of the South or the scenically attractive regions of the Atlantic coast.

Regions themselves may play an important promotional role in presenting their locational attractions, financial and non-financial, and in ensuring that potential investors are made to feel welcome in the area. Financial incentives for new investment, while very important, are unfortunately subject to severe national budgetary restraint in many of the weaker regions of the Community. Just as important, however, is the general business environment in the weaker regions including quality of infrastructure,

particularly in the field of transport and telecommunications, as well as education, leisure and recreational facilities. The regions can also help to promote their development by establishing and deepening contacts with other parts of Europe.

Meanwhile, disparities in education and training provision will need to be further reduced if a more even spread of economic activity and development is to occur. These developments seem likely to be facilitated by the continuation of trends in the 1990s towards greater balance in the development of the Community's urban system, with a relative strengthening of the position of smaller cities. Even in southern Member States where rural-urban migration has hitherto brought about a relatively rapid expansion of the largest capital cities, there is now an increasing tendency for this migration to be redirected to smaller cities.

Demography

The above developments are taking place at a time when, in general, the European

population is stagnating and ageing in marked contrast to continuing population explosion elsewhere.

Current projections suggest that the population of the Community, some 340 million people, is likely to remain unchanged during the 1990s as a result of the continuation of the long-term trend of low birth rates in the North combined with rapidly falling birth rates in the South and in Ireland. The ageing of the population is particularly acute in central regions especially in Germany and northern Italy but this trend is spreading across virtually the whole of the European territory. The Community's southern reservoir of labour is drying up as a result of the rapid decline in birth rates.

In much of the North there is a need to re-examine priorities in social infrastructure in, for example, education and health services. In the early years of the next century, southern Member States and Ireland will face the same requirement. Potential new members of the Community in the EFTA countries, and in certain countries of Central and Eastern Europe (includ-

ing newly independent republics of the former USSR), are facing a similar situation.

Outside the Community, population growth will continue. The African population, for example, will grow from a base which is more or less the same as that of Europe (around 500 million in 1985) to a level which is three times the European level by the year 2025. The population of the Maghreb countries is set to double in the next 30 years. The pressure of such population growth allied to relatively poor economic opportunities may be reflected in increased pressure of migration into the Community. Other pressures may arise from the countries of Central and Eastern Europe, where it is likely that new job opportunities will not be created in sufficient numbers to replace those lost by economic restructuring, at least in the short-term. Temporary migration from these areas could be the pattern of the 1990s affecting not only the North but also Member States in the South of the Community. Past trends indicate that foreign migrants are attracted to the larger urban centres adding to

problems of congestion which are already intense.

Infrastructure and spatial coherence

Developments in the transport, telecommunications and energy infrastructures have far-reaching implications for the use of the Community's territory. Up to the present, such infrastructural developments have been characterized by the virtual absence of forward planning of a kind which takes account of the development needs of the regions in the context of the Community as a whole. The discussion of trans-European networks at Community level is, however, now laying the basis of a coherent framework for future developments, at least as far as major links are concerned.

Transport

In relation to transport, the Community is faced with increasing traffic growth and congestion. This is a reflection of the failure of investment to keep pace with traf-

fic growth. In fact, between 1975 and 1984 when the volume of traffic expanded by 25%, investment declined by 22%.

In southern England, Benelux, northern France, Germany and northern Italy, congestion and the environmental effects of traffic are particularly severe. Here the availability of land for investment in new infrastructures is limited and expensive and the resistance of the population and environmental pressure groups to new projects is often intense.

It is increasingly evident that given, on the one hand, the expected increase in the movement of people and goods and, on the other hand, the constraints on public finance, further increases in congestion will arise in the medium-term. This will be particularly acute in the case of road transport, although developments in the rail network and the advent of the high-speed train will reduce some of the immediate pressures. The search for alternative measures will intensify over the next decade. Experimentation has already begun with measures to improve the flow of traffic, new tech-

niques in road vehicle guidance and road-use charges. The evidence suggests, however, that these will have only limited impact in the congested areas. Where charges are concerned, for the use of roads or for parking, experience suggests that these will have to be set at unpopular levels to have a measurable effect.

Given the mounting problem of congestion, distance-shrinking technologies are an increasingly attractive option to remove some of the pressure from the core areas and to improve their quality of life. High-speed transport in tandem with complementary developments in information technology and telecommunications permit businesses to locate in lower cost, less congested regions while remaining in close contact with markets.

The development of the European transport network in a way which generates new opportunities for the regions requires the creation of high-speed links — auto-routes, high-speed rail links and airways — in complementary combination with maritime transport to connect the peripheral regions with the centre and

with one another. The early completion of missing links in the European network is therefore a priority as established in the trans-European networks exercise.

The effects of the high-speed train and airtransport, in particular, may mean merely that areas around the stations and terminals derive most benefit whereas areas crossed by these means of transport can be marginalized. The balanced use of the Community's territory will therefore come to depend on capillary connections to the new high-speed links. The efficient movement of freight will also require the development of intermodal transport integrating road, rail, air and waterways. Maritime connections too will be of importance for peripheral regions.

Information technology and telecommunications

In the field of telecommunications, new developments in information technology offer many benefits in terms of the spatial integration of the Community. Information can flow instantly within

and between firms irrespective of physical distance, allowing, for example, small enterprises and plants in remote areas to maintain close contact with other producers and distributors in the production chain.

Information technology and telecommunications (ITT) have the potential to improve the economic prospects of even the most remote areas through developments such as teleworking and the provision of social and education services. Nevertheless, there are at present considerable regional differences in access to modern telecommunications networks which are concentrated in the large markets of the centre in the Community. In the periphery and in rural areas, the absence of a large market for these services means that the return on investment in a telecommunications network will be low in the short-term. In the meantime, and in anticipation of higher future returns over the longer term, there is a need for public, including Community, support in providing such infrastructure combined with education and training in the use of modern technologies.

While ITT can substitute for conventional means of transport, it is also the case that the dispersal of economic activity made possible by ITT creates new transport needs. Businesses remote from the market will require efficient means of transportation of goods. Moreover, the importance of personal contacts will remain for the development of new markets, relationships with suppliers, etc. This will generate a need for high-speed passenger transport links.

Energy

A secure supply of energy at competitive prices is a fundamental prerequisite to regional development. In particular, it will be necessary, in addition to the development of local and renewable sources of energy, to complete existing distribution networks for gas and electricity to allow many regions outside the central core the benefits of supplies at lower prices.

The extension of the network and the provision of new electricity generating

capacity have, however, implications for the natural environment — both its landscape and air quality — requiring coordination at Community level. The Community's involvement will also be important in relation to securing supplies. Although efficiency measures will reduce the level of energy inputs per unit of output, energy supplies — especially gas — will increasingly have to come from outside the Community.

Environment

Economic activity in the Community is often associated with environmental degradation and damage to natural assets. A more integrated Community over the next decades must increasingly set its economic objectives in terms of sustainable growth. A clean and attractive environment is an invaluable asset for many regions and the short-term costs of its protection must be set against the medium and longer-term returns.

Industrial processes concentrated in the Community's mostly northern industrial

centres are large producers of gases responsible for acid rain and the greenhouse effect. Controls under EC Directives and the development of new technologies have helped to reduce some emissions by up to 50% since the 1970s with further reductions anticipated over the rest of the century. Tackling pollution from Central and Eastern Europe will be a priority in the next decade.

Pollution is also associated with the transport sector and hence with the traffic congested regions especially in the Community's development poles. With growth in the number of vehicles apparently inevitable, emissions are expected to remain significant, although the immediate effects of stricter technical standards should reduce these over the next decade.

Community water sources are also heavily polluted. Intensive agricultural production has raised nitrate content — from fertilisers — in ground water in many northern regions to levels which are above EC standards. The continuing slow penetration of nitrates presently accumulated in the soil will pol-

lute ground water for decades.

The issue of what to do with wastes in the Community is reaching a critical phase. Previous solutions included the exporting of wastes to Central and Eastern Europe or the third world and dumping into the sea, but these options have been foreclosed by public opinion and concerted international action. Landfill solutions are no longer viable in some Member States while recycling and incineration, even with suitable emission controls, often provoke profound local resistance.

The Community's natural heritage is also under increasing pressure. Wildlife is losing natural habitats from urban, tourist and agricultural development and from contamination by pollutants throughout the Community. Many of Europe's important sites for nature conservation are located in the Community's weaker regions with the result that the tension between the environment and economic development is particularly acute. Community regional policy measures need to support development efforts which are sensitive to environmental considerations.

The 1990s are likely to see a more decisive turnaround in attitudes and efforts towards environmental protection. In many of the congested regions of the northern core the costs to society of further development are reaching levels which are increasingly perceived as unacceptably high. For less developed and peripheral regions there are important economic advantages in a clean, attractive environment which enhances their potential for tourism and as locations for new activities.

The future of specific areas

The issues discussed above have different implications for the various types of area which make up the European geographical space: urban and rural areas, coastal areas and islands and internal and external border regions.

Urban areas

The cities of Europe have undergone substantial changes in terms of size —

area and population — and function. In northern cities, many of the changes can be related to developments in the economic structure, such as the decline of traditional manufacturing and the growth of light industry and services bringing new location preferences for the suburbs and smaller urban areas. More recent trends suggest a return to the inner cities, often as a result of joint public-private initiatives.

The trend towards a more even balance in the urban system in the North has also been echoed by developments in the South. The period of rapid growth in the southern cities has come to an end while smaller towns and cities are experiencing expansion. The 1990s therefore hold out the possibility of a more balanced urban system in the Community as a whole.

The completion of the single market will intensify competition between cities and lead to some adjustments in the European hierarchies of cities. Although large urban areas and metropolitan regions will retain their predominance as leading control centres

in the global economy, there are opportunities for other cities away from the core areas to develop niche markets. Such opportunities could be enhanced through cooperation and complementary development based on networks established at regional, national and European level.

Many of the cities of Europe display particularly sharp distinctions between rich and poor. This is often related to the concentration of foreign migrants in urban areas. Moreover, differences in incomes and employment opportunities are often associated with profound physical segregation and are manifest in the quality of housing and public service infrastructures.

Migration pressures from outside the Community are likely to persist and with them the traditional pattern of residential concentration in particular parts of the major cities. There is a clear case for intensified educational, language and vocational training programmes, especially in those urban areas where high levels of unemployment coincide with shortages of skilled labour.

Rural areas

A slow but steady population decline has been the experience of many of the Community's rural areas. This decline is today mainly a result of migration within regions from country to town rather than between regions as in the past and is related to the modernization of the agricultural sector. Future Community agricultural policy is currently being reoriented towards controlling levels of production while attempting to maintain the agricultural population, diversify the economy of rural areas and sustain them in social and environmental terms.

Estimates suggest, however, that around half of the people working in agriculture will be employed in, or seeking, a second job by the year 2000. The solution to the problems of rural areas will therefore have to be found largely outside agriculture. Smaller towns in rural regions, adequately served by telecommunications and transport, will play a key role. They represent potentially attractive locations to small and medium-sized enterprises and

offer additional opportunities to those for whom agriculture can only be a source of part-time employment.

Border Areas

Border areas are among the zones most affected by the increasing integration of the Community, both in terms of the reduced significance of internal frontiers and in terms of the peripherality of areas on the frontiers with third countries. A legacy of the past is that many border areas have tended to be among the poorer parts of their respective Member States. This is a result not just of their generally peripheral location, but also of the constraints imposed on commercial spheres of influence by the juxtaposition of different legal and administrative systems, a situation exacerbated by poor transfrontier infrastructural links. In the South and in Ireland the main factor distorting development in border areas appears to be the poor quality of transport, telecommunications and other aspects of the infrastructure. With increasing integration, border areas will

have new opportunities which they were previously denied. Certain areas which are peripheral in terms of their Member State are central in terms of an integrated European Community. New and better infrastructure needs to be in place if full advantage is to be taken of the new situation.

Regarding external frontiers with third countries, many of these will continue to experience problems linked to their peripheral location. It seems clear that the 1990s will bring many changes in terms of the relations between the Community and the EFTA countries (some of whom are likely to become full members in the not too distant future) and between the Community and the economies in transition in Central and Eastern Europe. This is likely to be accompanied by new migration pressures into the Community, which are likely to be felt, at least in the first instance, in certain border areas, including commuting to employment. At the same time, the external border areas of the Community will be able to exploit new commercial opportunities as economic conditions in the Central and

European countries improve.

Coastal areas and Islands

Coastal areas are among the richer but also more fragile geographical assets of the Community. In general, the coastal strips of the Community face problems of over-development and are now relatively densely populated, although settlement patterns differ considerably. It seems likely that the relatively rapid growth of coastal areas will continue both for residential purposes and through increasing investment in new economic activities and tourism. With this growth will come increased pressure on the coastal environment. The reduction of pollution in coastal waters will require a continuing effort. In the coastal areas dependent on fishing, the planned reduction of overcapacity will bring about significant restructuring of the industry and generate a need for diversification.

Problems of peripheralization tend to be particularly acute for the islands of the

Community. Combined with their relatively small size, with certain notable exceptions, difficulties of access have tended to limit opportunities for economic activity to the primary sector (agriculture and fishing) and to tourism. Island communities tend to experience the outward migration of younger people which imposes further limits on development potential. Efforts will be required to improve access and to promote where possible the diversification of economic activity. New technologies and telecommunications could make a particularly important contribution in providing services to the islands and promoting the establishment and retention of enterprises.

Cooperation between cities and regions

The construction of a Europe without frontiers will strengthen relations between regions in different Member States. This report identifies a number of areas where the Community can assist in this process by promoting the

overall coherence in the use of the Community's territory. Regions themselves are awakening to both the increased competition and the new opportunities they face in a more integrated Europe, extending even beyond the Twelve. There is already evidence that cities and regions are establishing new networks and other forms of cooperation to reap the benefits of economies of scale, technology transfers and increased efficiency through joint-ventures.

In order to promote a bottom-up approach to the development of relationships between regions and to encourage new ways of thinking which transcend national frontiers, the Commission has launched a series of research actions which take up the issues covered in this report, examining them from the point of view of particular regions or groups of regions.

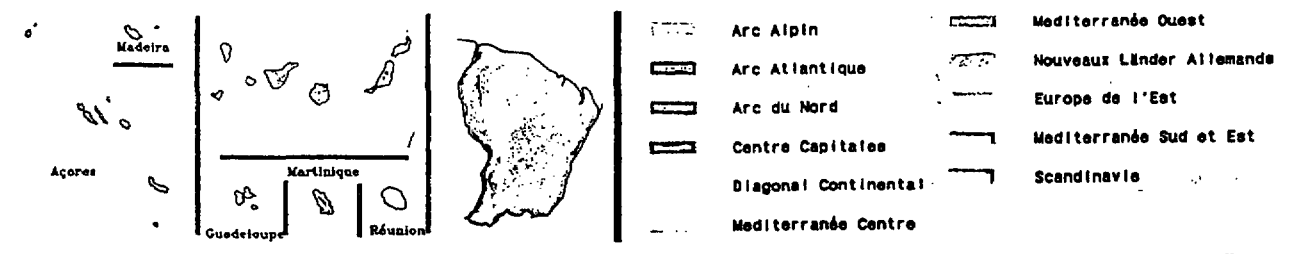
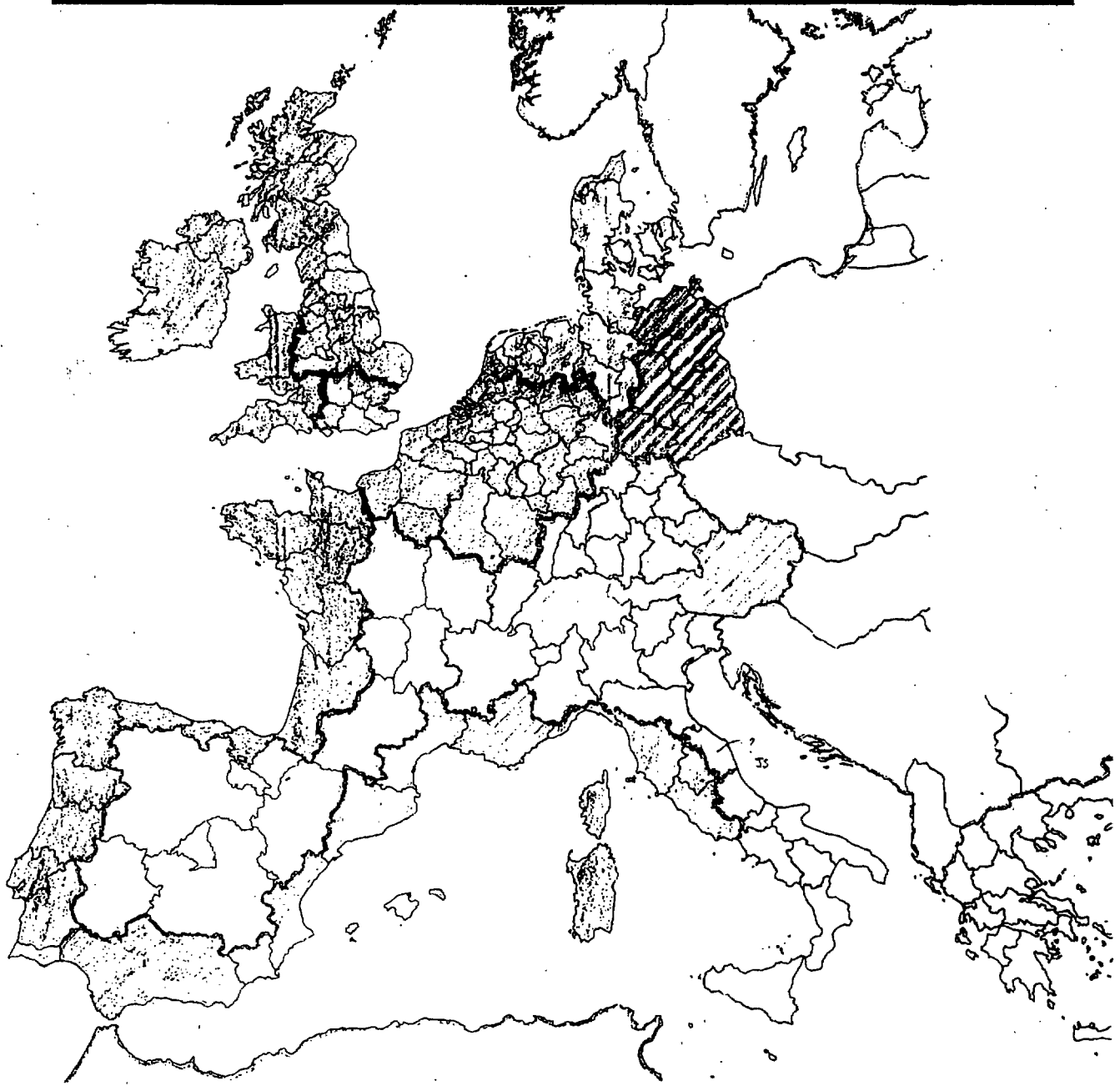
A total of seven regional groupings, selected on the basis of geographical proximity and of their developing mutual relationships, have been identified, to which the new German

Länder have been added (Map 2):

- the Atlantic regions (in UK, Ireland, France, Spain and Portugal);
- the 'central capitals' (in UK, Germany, Netherlands, Belgium, Luxembourg and France);
- the alpine regions (in Germany, France and Italy);
- the West Mediterranean regions (in Spain, France and Italy);
- the central areas of the Mediterranean of the Italian Mezzogiorno and Greece;
- the North Sea coastal regions (in UK, the Netherlands, Germany and Denmark);
- the inland continental regions (in France and Spain);
- the five new German Länder.

In addition, three studies have been launched to examine the impact on regional development and planning of:

Transregional and External Spatial Impact Studies



- closer links with the Scandinavian countries;
- the changing circumstances in Central and Eastern Europe;
- the situation in, and relationships with, the countries to the South and East of the Mediterranean.

The present report on *Europe 2000* and the research actions which are currently underway are intended as the start of a process whereby issues relating to the effective use of the Community's territory will be continuously examined. Further reports will follow periodically.

Introduction

The way in which Europe's land space is used is a major determining factor in its long-term economic prosperity. Europe's territory is subject to a wide range of direct and indirect pressures arising from socio-economic developments as well as from the interventions on the part of a multiplicity of national and regional planning authorities.

These pressures carry both risks and opportunities for the balanced development of the Community's territory. Among the risks are the possible marginalization of certain areas or the increased isolation of peripheral regions with consequential population movements; environmental damage and transport congestion, fuelled by the rising prosperity of a more integrated Community; and wasteful competition or duplication where complementarity is more appropriate. On the other hand, the introduction of new technologies offers opportunities for the better use of the Community's territory.

Strategic investment decisions have lasting and often irreversible consequences for our land and resources. It is essential therefore that they are made in the light of the best available information. Information which does not go beyond the national level is no longer sufficient. The Community's involvement in land use and physical planning stems from this.

This report examines the issues which are of most importance to the coherent use of Community territory. The following sections outline the European and international context and set out the legal and political background to the preparation of this document.

Political, social and economic developments

With the increasing globalization of economic activity

and the liberalization of centrally planned economies, the countries of Europe are set on a course of closer and closer economic integration. Within the European Community, this integration process has been anticipated and accelerated by the commitment to the creation of a single large market without frontiers and by the launching of the Inter-Governmental Conferences on economic, monetary and political union in December 1990.

The physical and economic dimensions of the Community are large by any standard. After the unification of Germany, the European land area amounts to 2.4 million square km and has a population of over 340 million. The twelfth ranking bloc in terms of surface area, the Community is ranked third in terms of population behind China and India and ahead of the USSR and the US. In terms of overall GDP, the Community is the richest economy in the world surpassing even the US.

Both within the Community and in the world beyond it, the flows of trade, capital and people across traditional national borders are now increasing substantially and their pattern within individual countries is adjusting to the growth of international linkages. These flows seem certain to increase further with the renewal of economic growth in the world economies during the 1990s.

In the Community, growth has slowed down at the beginning of the 1990s, following a period of rapid economic growth in the latter part of the 1980s with annual rates reaching a peak of nearly 4% in 1988. This growth was accompanied by increasing rates of job creation bringing the rate of unemployment down to 8.4% in 1990 from a peak of 10.8% in 1985 at a time when labour force in the Community was growing rapidly. In the immediate period ahead economic growth will remain at 2-2½% a year up to the end of 1992. Thereafter, the outlook remains favourable: the completion of the internal market will continue to add to economic growth while the elimination of exchange rate variability, uncertainty and transaction costs through

economic and monetary union (EMU) could yield gains in efficiency and strengthen the trend of investment, growth and employment.

Although the general effects of EMU are expected to be positive, they may be unevenly distributed among the Community's regions. The need for stricter budgetary discipline and the loss of the exchange rate weapon may have particularly severe effects for regions undergoing structural change. On the other hand, monetary union will benefit weaker parts of the Community by reducing transaction costs and interest rates where these bear exchange premia, including many regions where development is lagging behind.

It is clear, however, that the potential benefits of the single internal market in the Community can be realized more fully when the spatial problems, such as congestion, missing links and inconsistencies which impede the rational allocation of resources, are resolved or at least alleviated.

The economic and other effects of increasing integra-

tion will inevitably have a substantial impact on land use and physical planning within the Community. Increased transport and telecommunications traffic and technological developments in these, as well as in energy sources and networks, will place additional demands on infrastructure at a regional, national and European level. Migration of people between regions and between countries will affect cities, towns and rural areas and have implications for the provision of housing and public services. Business investment and location decisions will not only have a direct impact on land use, but will also have consequences for the development of physical infrastructure within and between cities.

The development of the Community's territory within the large market needs also to be seen against the background of closer economic, social and cultural integration with neighbouring countries.

For example, the Community in 1991 has been negotiating an agreement with the EFTA countries, its major trading partners, for

the creation of a European Economic Area (EEA). In such an agreement the four freedoms enshrined in the Treaty of Rome — freedom of movement of goods, services, individuals and capital — would be embraced by the EFTA countries. In addition, the agreement envisages greater cooperation in supporting policies as well as actions to reduce economic and social disparities between the Community and the EFTA countries. This will also raise questions relating to the development of infrastructure networks, involving links across Alpine regions to the South and with Scandinavia to the North. In the course of the 1990s, it seems likely that at least some of these countries will become full members of the Community.

The opening up of the countries of Central and Eastern Europe will have far-reaching consequences for economic cooperation, technology transfer, social and cultural exchange, tourist movements and the development of physical infrastructure, for example in transport and telecommunications. The immediate future will witness an intensive effort aimed at economic tran-

sition in these countries, including an attempt to deal with the severe environmental decay of previous industrialization. Over time, the development of closer economic and trading relationships will create new opportunities for the Community's regions including many which are outside the main development areas.

Political and economic developments in the countries on the southern and eastern rim of the Mediterranean will also have implications for the Community. Migratory pressures and energy supplies are two issues which are likely to require particular attention.

The impact of sectoral policies

The many sectoral policies developed and decided at national and Community level are also having an impact on land use within the territories of the Member States. These include:

- the common agricultural and fisheries policies, which have a determining influence on the

character and structure of rural and coastal areas;

- industrial policies which, through their influence on the distribution of economic activity and employment, require the development of new industrial sites and/or redevelopment of old ones;
- the Community's external policy which, through trade agreements and economic development cooperation with third countries, has an impact on its own regions in industrial as well as migration terms;
- environmental policies concerning land, water and air pollution which have important consequences for planning and use of the Community's land area. The relationship of environmental protection to economic development is particularly sensitive, especially as the quality of life is becoming an important factor in the ability of regions and cities to attract new investment;
- policies for the development of human resources, especially as regards

vocational training, which, together with R&D, also influence the location of economic activity and thus have an impact on land use;

- housing policies involving the development of new residential areas and the refurbishment of the old;
- policies for the development of energy supplies and distribution networks.

Geographic and socio-economic disparities

Community land space is limited. Its potential uses are restricted by geography and by social and cultural differences. In terms of physical geography the variations are considerable. The Community's frontiers do not enclose a large, coherent land mass as is the case in the North of the continents of Asia and America. Rather, seven of the twelve Member States can be described as peninsulas or islands. Of the 174 regions of the Com-

munity, 62 are partly or wholly comprised of islands or groups of islands belonging to eight Member States, and 40 are peninsulas belonging to seven Member States. In fact, only three Member States are totally integrated into the European continent in terms of physical geography. This is in marked contrast to the USA, where only three States out of 50 are either islands or peninsulas. Within the Community's territory itself there are considerable physical barriers in the form of large mountain ranges (the Alps and the Pyrenees).

In terms of social geography, the Community's land area is inhabited extremely unevenly. Nearly a third of the population is crowded into regions with 500 or more inhabitants per square km, compared to a Community average of 145 inhabitants per square km (Map 3). There are thus large areas of the Community which are sparsely populated and a quarter of the total territory is comprised of regions where population density is less than 40 inhabitants per square km.

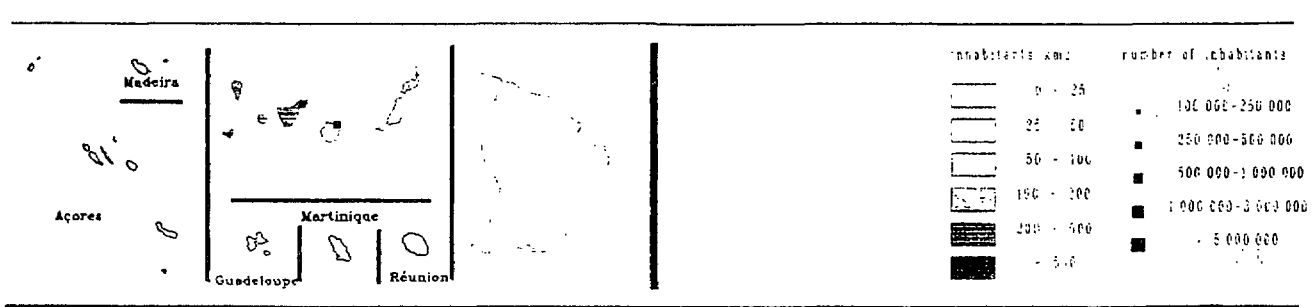
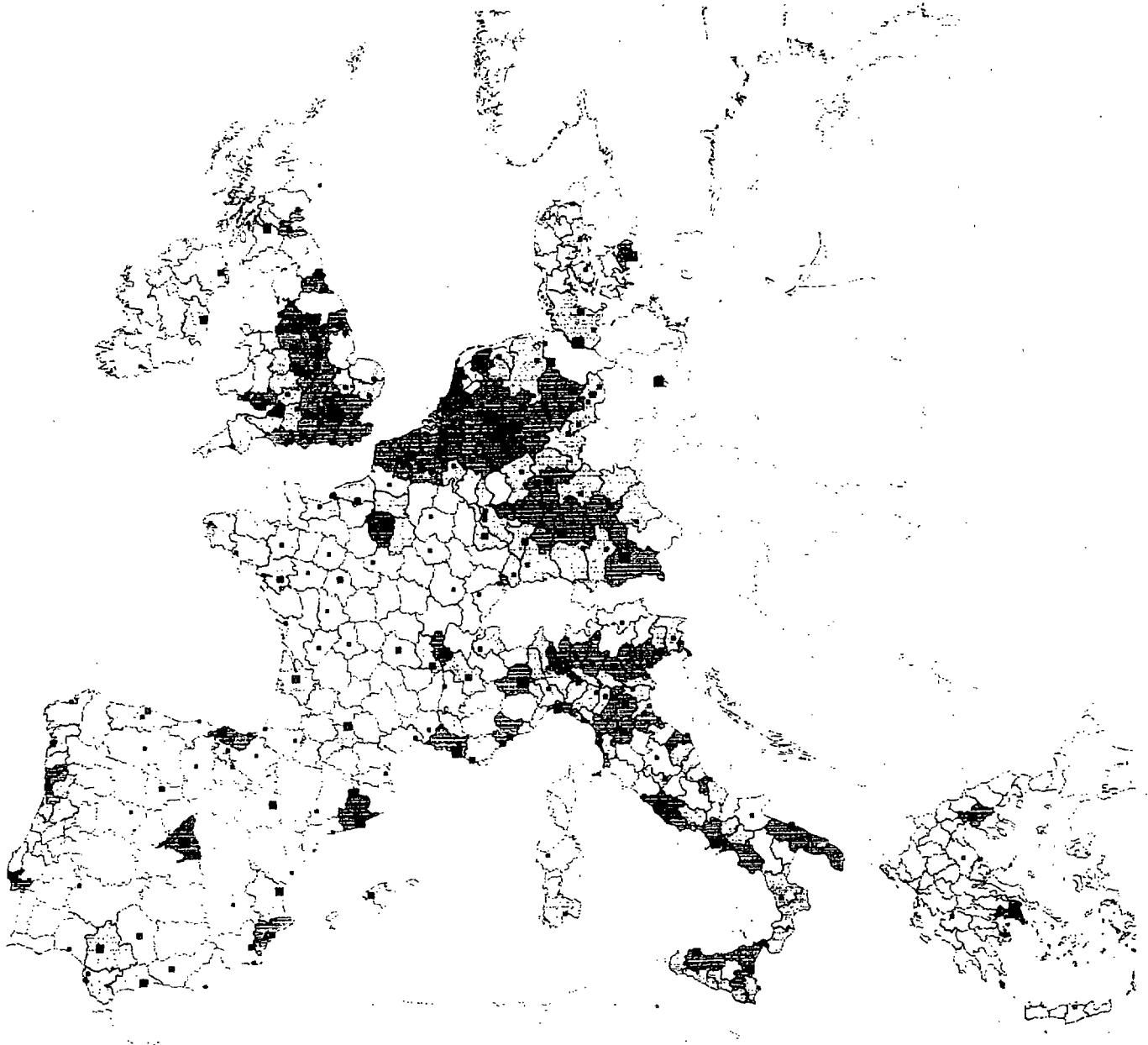
The geographical divisions are reinforced by profound social and cultural differen-

ces whose primary manifestation is in the number of languages spoken, or understood, by the Community's citizens. There are nine principal languages in the Community with a dozen others spoken by around 5% of the total population.

In addition to the geographical differences there are wide economic and social disparities between different parts of the Community. The ten least developed regions, located mainly in Greece and Portugal, have average incomes per head which are less than one-third of the average for the ten most advanced regions, located in the Community's traditional core of London, Paris, Amsterdam and the Ruhr basin and in the newer growth areas in the South, centred on southern Germany and northern Italy. The evidence suggests that these disparities are twice as wide as those between regions in the USA.

Wide disparities also exist in terms of employment opportunities, with particularly high concentrations of unemployment in the southern regions of the Community, in Spain and southern Italy, and in Ireland. In 1990, in

Population Density and Urban Centres



the ten regions with the lowest unemployment, the rate averaged just over 2½%, while in the ten regions with the highest rate, it averaged 22%.

Successive periodic reports of the Commission have attempted to explain the many causes of these disparities on the basis of extensive research. The results of the research have been used to inform policies to assist the weaker parts of the Community. These policies, as recently strengthened by the Single European Act, also directly impinge on planning decisions over land use.

They are most obviously involved through the attack on the structural problems of weaker and disadvantaged regions, with more than half of Community territory being covered by regional development programmes. In the less-developed regions, in particular, these programmes are predominantly concerned with the development of physical infrastructure.

Community assistance for regional development is necessarily concentrated on the regions with the most

severe structural problems of underdevelopment or restructuring (Map 4). However, regions throughout the Community are often crucially dependent on major infrastructure or industrial investment projects located in other parts of the Community. Within the large market of 1992, peripheral regions, for example, also have a direct interest in the completion of schemes in more central regions which will link them into European-wide transport networks. Regional planning at Community level is therefore a prerequisite for the harmonious development of the Community and the better integration of peripheral areas.

Institutional structures

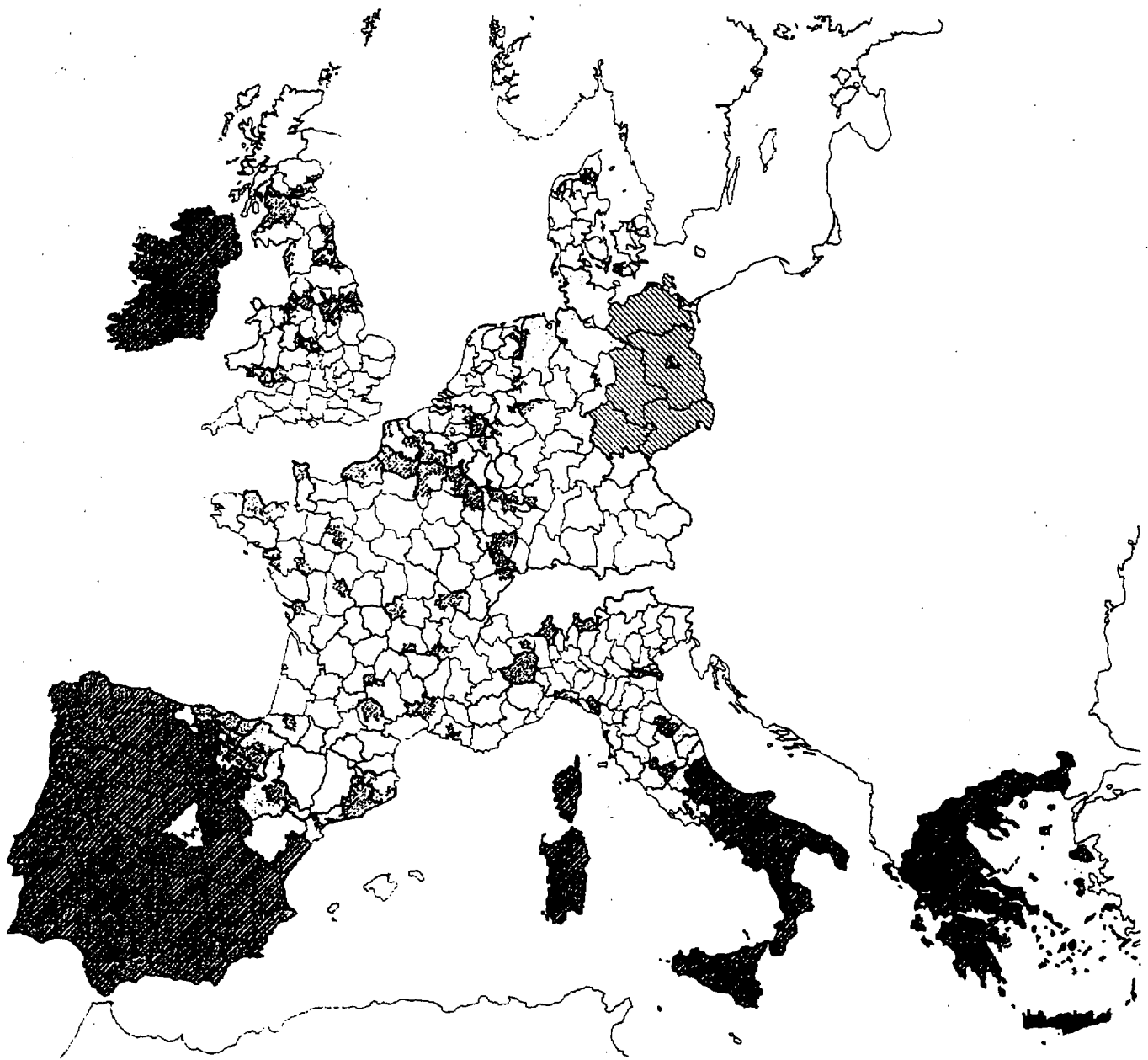
Member States, together with their regional and local authorities, have responsibility for land use decisions. Their individual spatial planning practices reflect geographical differences as well as differing legal and constitutional systems.

Some Member States have ministries dedicated to land

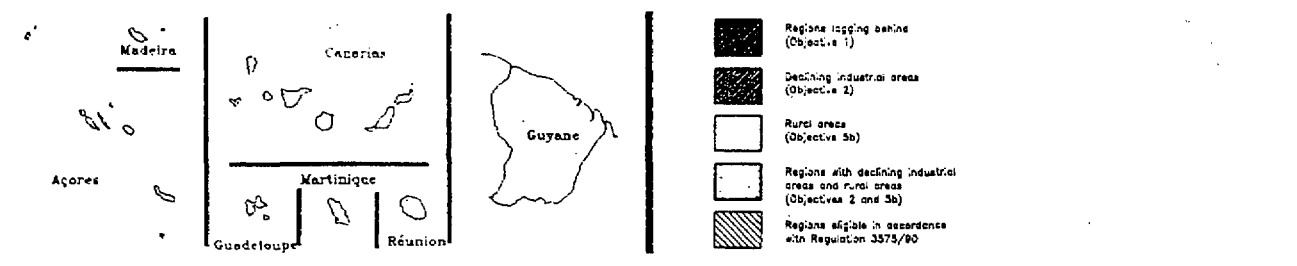
use and physical planning (such as Germany and the Netherlands). Others combine land use planning with regional policy (France and Portugal) whereas elsewhere such issues are dealt with in ministries concerned with sectoral matters (Denmark, the UK and Greece (Ministries of Environment) and Spain (Ministry of Public Works)).

Public authorities are drawing up plans for the next decade for basic infrastructure in transport, energy, water and telecommunications and for investment in schools, hospitals and social services. In some Member States, these decisions have been increasingly decentralized, a good example of the application of the principle of subsidiarity. Public authorities, however, face growing difficulties in assessing the likely pressures on land and other resources from influences external to their own territories. The Community dimension itself is playing an increasing role in their decision-making process. They need information on developments concerning the Community territory as a whole in order to make the best decisions concerning their own investments.

Regions eligible under the objectives of the Structural Funds of the European Community



Source : CEC DGXVI



In the private sector too, managers who are formulating business strategies need a broader framework of reference from public authorities which gives an indication of the longer-term trends and pressures shaping European markets.

Member States, regions, cities and the private sector are gradually becoming aware of the necessity to plan beyond national boundaries. In some Member States, plans have been developed, or are emerging, which recognize the need to take into account the European context. These plans are the natural consequence of the European integration process and point to the need for consultation at a trans-national level, for example:

- Under the present Dutch national plan the position of the Netherlands in tomorrow's 'Europe without frontiers' is a central element determining strategy for the following 25 years.
- The Danish national planning report of the Ministry for the environment, incorporates a spatial development per-

spective, with a thirty year horizon which includes 'A strategy for Denmark in the new Europe'.

- In France, DATAR has launched a large-scale programme of studies for the period up to the year 2000 with the objective of providing a basis for policy. The studies will analyse the expected changes in society and their spatial impact from a wider European point of view.
- In Portugal, the Gulbenkian Foundation published in 1990 a report, 'Reflections on the Future of Portugal (and of Europe)', pointing to the particular problems of a peripheral country, but also identifying opportunities for modernization and better exploitation of its potential in a European framework.

In recent years, and in particular since the adoption of the Single Act, authorities at lower levels — regional and local — have become more active in developing European networks of contacts to increase cooperation, reflect-

ing the European dimension of planning.

The most common forms of cooperation network are the cross-border associations of regional and local authorities that have been established along many of the Community's internal borders. The most advanced are along the Dutch-German border, such as the Euregio or Ems-Dollar organizations. Similar networks are also growing in importance along the borders of France, such as the Communauté de Travail des Pyrénées on the border with Spain or the Pôle Européen de Développement on the border with Belgium and Luxembourg.

Regions and cities are also cooperating irrespective of geographical proximity. The 'Four Motors of Europe' (Rhones-Alpes, Baden-Württemberg, Lombardy and Catalonia) have agreed to pool resources in certain fields such as scientific and technological research. Several regions in the Atlantic arc are cooperating to address common transport problems and develop joint marketing programmes.

Major cities with European aspirations such as Lyon,

Birmingham, Rotterdam, Barcelona and Frankfurt are developing a range of joint activities.

At regional level, the plans of the relevant authorities are taking more and more account of developments in neighbouring regions. The London and South East Regional Planning Conference issued in 1990 'A New Strategy for the South East' calling for new broadly-based initiatives to seize the opportunities offered by the single market. The development report of North Rhine-Westphalia (1988) makes a clear reference to the European context and the requirements of the larger planning perspective.

The strategic plans of Barcelona ('Barcelona 2000') and of Charleroi are examples of the European challenge being taken up at the level of cities and urban areas.

Other public or semi-public bodies such as water authorities, river authorities, railway corporations or public utilities play a distinct role in the management of space. These too are acquiring a European dimension. A prime example is the Com-

munity of European Railways which has played an important role in the planning and decision making on the European high-speed train network.

In the private sector, bodies such as the Round Table of European Industrialists (ERT), are seeking to create the right environment for European industry and have set up working groups, several of which are involved in regional planning.

The need for a coherent Community approach

Where particular developments affect more than one Member State, there are relatively few means of consultation between Members States to avoid duplication or mismatch of investment effort. A more coherent approach to the use of Community territory across frontiers would also help to maximize the potential benefits of the single market.

A prime example relates to the situation of the four pe-

ripheral Member States, whose relations with the centre of the Community and access to the principal markets are affected by infrastructural investment decisions in one or more neighbouring Member State. Problems arise where the priorities of the peripheral and neighbouring Member States diverge. Thus Greek access to the central areas of the Community depends in part on coordination with Italy in relation to sea transport across the Adriatic (port and vessel capacities, timetabling and price). Similarly Portuguese access to the centre depends on cooperation with Spain in the development of rail and road connections. In Denmark the road and rail connections depend on complementary investments in Germany. The position of Ireland is among the more difficult, being only one of two Member States (along with Greece) which, after the completion of the Channel Tunnel, is without a fixed link to the rest of the Community.

Other examples which illustrate the need for coordination across national frontiers include the Channel Tunnel itself, which has implications not only for the trans-

port networks in the UK and France but also for those of Benelux and Germany. More generally new inter-Member State links, such as the Channel Tunnel, or any prospective tunnel through the Alps, need to be considered as the catalyst for a fundamental remodelling of infrastructure within Member States, in a context where the optimal configuration of transport links would make a major contribution to achieving full integration of the Community's economy.

Tourism is also an activity which involves flows across national frontiers. For the development of a region's tourism facilities it is important to have knowledge about the general income development prospects in other parts of the Community from which visitors may come and the development strategies pursued by other tourist regions.

In the field of research and development, Europe is facing increasing competition from Japan and the United States. The creation of centres of excellence will open up ways for the diffusion of innovative technologies. Less developed regions, in particular, could find it very

difficult to establish self-sustained centres of excellence. European-wide networks of research centres could add value to the concept of creating a genuine European pool of knowledge resources.

Many actions concerning the protection of the environment are more effective — or indeed only effective at all — if they are undertaken with a Community or international perspective. These include improving the quality of Mediterranean coastal waters and tackling air pollution problems, both of which demonstrate the need to look beyond the boundaries of the European Community of the twelve.

The management of water basins belonging to different Member States has a marked transnational or even international aspect regarding navigation, pollution, water consumption and fishing. The use of the Rhine to dispose of wastes limits its value as a resource, progressively from Switzerland, through Germany, France and the Netherlands.

Cross-border planning, to develop links which previously have not existed or

re-establish the economic unity of artificially divided geographical entities, is a Community priority. The European Community has almost 10,000 km of land frontier, 60% of which are internal borders and the rest are borders with its neighbours in Central and Eastern Europe.

Towards a regional planning response

The need for a coherent Community framework on the organization of the European territory was already foreseen by the Council of Ministers when it adopted the regulations on the Structural Funds in 1988 (Article 10 of the ERDF Regulation). In 1989 Government Ministers responsible for regional policy in the Member States, at their informal meeting in Nantes, invited the Commission to prepare a document setting out a Community approach in this context.

In a resolution adopted at the October 1990 session,

the European Parliament also specifically called for a concerted approach to physical planning on a Community basis.

Following this political impetus the Commission prepared and adopted in November 1990 a Communication entitled Europe 2000: Outlook for the development of the Community's territory — A preliminary overview, which was presented at the second meeting of Ministers responsible for regional policy in Turin at the end of November last year.

Ministers welcomed the approach in this document, which was not to propose a master plan but to draw up a reference framework to support planners and decision makers in national, regional and local public authorities as well as the private sector. The purpose of such a framework is to inform planners about what is happening and what is foreseen in other parts of the Community, as well as to bring together both sectoral and spatial aspects of regional planning especially in relation to the provision of large infrastructures.

For the preparation of the present report the Commission has consulted Member States, the European Parliament, the Social and Economic Committee, the Consultative Council of Regional and Local Authorities and other interested bodies and experts. It has also held a series of multilateral and bilateral meetings with Member States to identify the major regional planning issues which concern them.

The main inputs for the preparation of this document have been horizontal studies which take a Community-wide approach on, for example, location factors for industry and services, urbanization and the functions of cities, and migration, as well as existing or developing Community programmes on specific issues such as the future development of the transport sector, energy and the environment. The research effort is ongoing and the present report is therefore only the first in a series of reports on matters relating to regional planning in the Community.

This report discusses factors influencing the use of the Community's territory over the next decade and beyond,

quantifying the effects where possible. It begins with demographic context, including prospective changes in the labour force and the effects of migratory flows, and the economic context, including the factors likely to affect the location of economic activity in the 1990s. The report goes on to consider physical planning issues, beginning with the future of major infrastructures in transportation, telecommunications, and the supply and distribution of energy, followed by an examination of pressures on the environment. This is followed by a consideration of the situation and prospects of the different geographical units in the Community, classified according to features which are either natural or man-made. Thus urban and rural areas are examined as well as coastal areas and islands and internal and external border areas. Policy considerations emerging from the analysis are presented in the final chapter.

An overview of the report's main findings on the new developments and their impact on the Community's territory is set out in the executive summary.

Introduction

This report will be presented at the Third meeting of Ministers responsible for regional policy and planning to be held in the Hague (18-19 November 1991).

Section A : Demographic and economic context

Demography

Population growth will come to an end in the Community in the 1990s. More rapidly falling birth rates in the South and Ireland than previously foreseen will bring about an ageing of population similar to the North. Pressures on infrastructure will change with increased demands for health care and reduced demands for education services for the young. Productivity may be affected by declining numbers in the prime working-age groups. Outside the Community, factors such as political upheaval, lack of economic opportunity or — in the case of North Africa — rapid population growth will continue to generate migratory pressures on the Twelve.

Fundamental to an assessment of regional planning pressures in the Community at the beginning of the next century is an understanding of demographic development and change.

The Community currently has a population of some 340 million in a land area of 2.36 million square km, an average of 145 people to each square km¹. This is considerably more than in the US, for example, where the average is some 26 people to each square km. There are wide differences, however, in the density of population between regions. In the more rural regions it

can be as low as 20 people per square km while in highly urbanized regions, concentrations of population of over 5,000 people per square km are not uncommon.

Long-term changes in the size of population in the Community as a whole and in different regions, depend on trends in birth and death rates and on migration into and out of the Community and between regions. Both 'natural' demographic changes and migration are themselves determined by a wide variety of social, economic, political and cultural factors. These factors and

the pattern of land use to which they give rise generally change only slowly over time and there is therefore a relatively high degree of certainty in population projections over periods of a decade or so.

Exceptions to this rule can arise during periods of severe political upheaval, war or other unusual circumstances. In such periods, population in particular regions can change significantly and suddenly. An example is the increase in population witnessed in parts of the former West Germany since the end of 1989, as a result of large-

scale migration from the East. Migratory flows tend to inject a degree of uncertainty into population projections as discussed below.

The projections which follow are for the Community's regions (defined at NUTS Level II), though it should be noted that some of the important demographic changes will occur inside these regions.

Demographic trends

Over the last twenty years the main demographic features in the Community have been:

- a fall in the birth rate of a third as women have had fewer children;
- a relatively stable death rate (deaths per thousand of population).

As a result, population growth fell progressively from an increase of more than 2 million people a year during the first half of the 1960s to 5-600 thousand a

year during the second half of the 1980s. New Commission projections² are that during the decade ahead natural population growth will fall to zero, and after the year 2000 population will begin to decline.

As a result, the age structure of population will change substantially. The effect of lower fertility rates (ie the average number of children born to women of child-bearing age) will reduce progressively the proportion of young people in the population while the proportion of elderly people will gradually rise. The ageing Community population will mean that by the year 2000 there will be nearly as many people aged 65 and over as under 15 year olds (each representing 16-17% of total population). By 2015, the proportion of those over 65 is likely to exceed 18% as against 13% in 1985, while under 15 year olds will represent less than 15% of the population as compared with 20% thirty years earlier.

The effects of an ageing population are unlikely to be counteracted by any foreseeable enlargement of the Community. In the Scandi-

navian countries and Austria, the proportion of 65s and over is already above the Community average while the proportion under 15 is similar. Countries in Central and Eastern Europe, apart from Poland and Yugoslavia, also have a population structure similar to northern parts of the Community.

Geographical implications

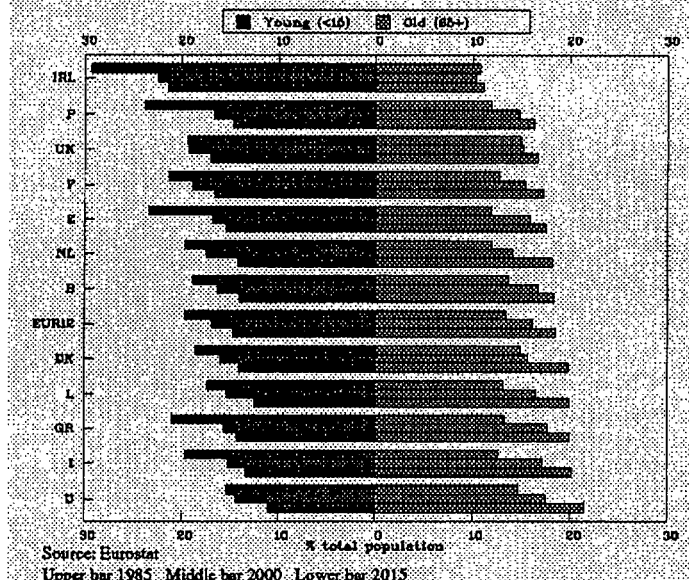
The ageing trends are common to most Member States, though rates of change tend to vary significantly. 25 years ago fertility rates were highest in southern parts of the Community (with the notable exception of Greece) and Ireland. Since then fertility rates have fallen markedly and now the average size of family is less than two children in all Member States except Ireland.

As a result of these trends, in the next century the South will no longer be the Community's 'reservoir' of young people as in the past. Instead these areas will experience the same ageing of

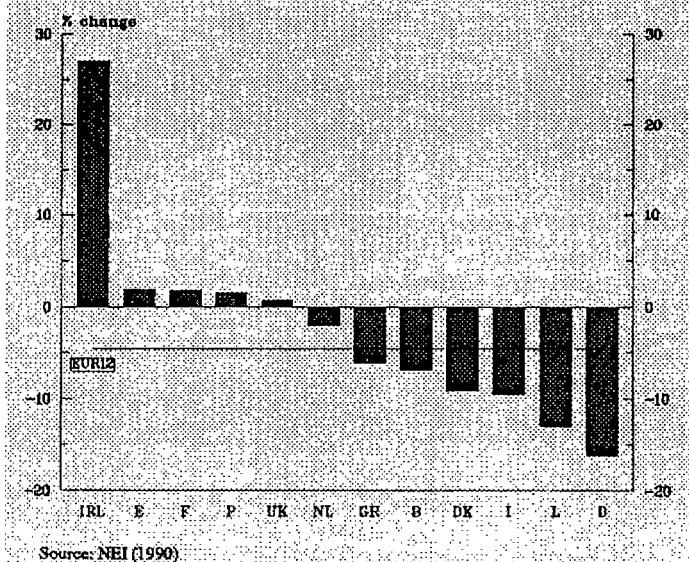
population as currently experienced in most northern areas (Graph 1).

In the meantime, there will remain over the next decade parts of the Community — especially in the less developed regions — where population and labour force will continue to grow. These trends also apply to certain northern regions, notably in the UK and France where the fall in fertility rates has not been as fast as in other northern parts of the Community. Consequently many regions in these countries in the year 2015, contrary to the general trend in the North of the Community, will still have a relatively high population of under 15. These countries will also have many regions with relatively few people over 65, a feature which is more characteristic of southern regions and Ireland. In general, at the beginning of the next century the regions with high proportions of the population over 65 are in an arc running from southern England through Belgium and Germany to northern Italy. Certain other regions also have high proportions of over-65s, such as coastal areas which attract the retired or rural areas from

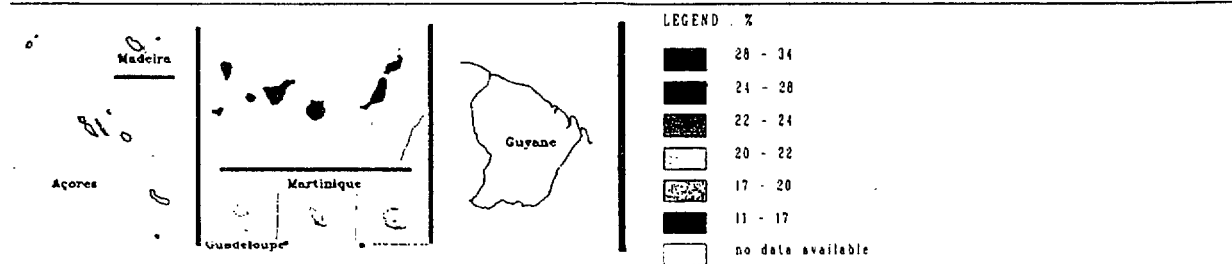
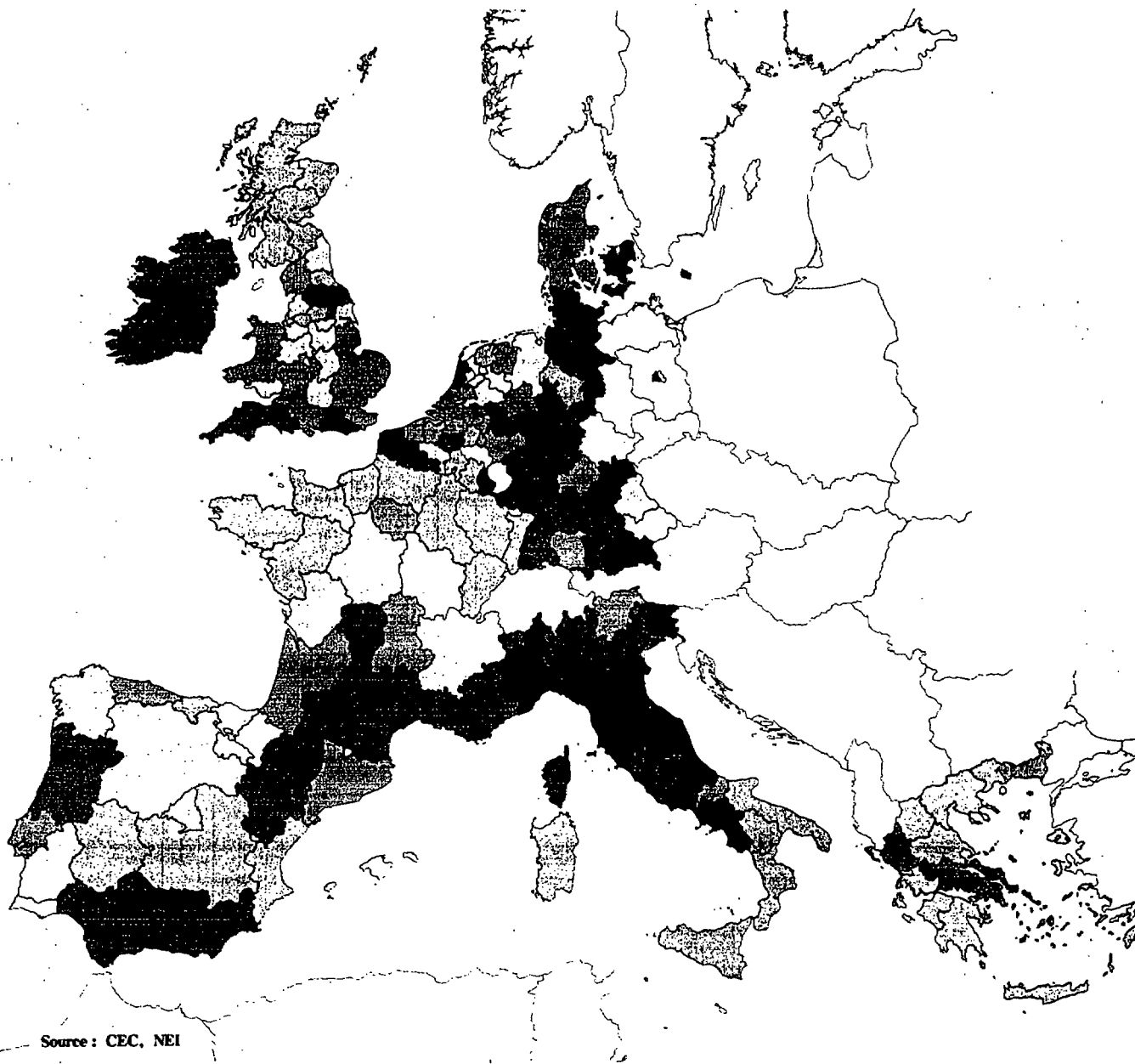
1 Projected shares of young and old people in the Community, 1985, 2000, 2015



2 Projected changes in working-age population, 1990-2015



Projected Age Structure Percentage of the population over 65 years of age by 2010



where many of the younger generation have emigrated (Maps 5 and 6).

In the parts of the Community with relatively young populations — Ireland, Spain and Portugal — the fall in relative numbers of young people over the next two decades will be accompanied by an increase in the population of working age rather than an increase in those of 65 and older. Similarly, the modest decline in fertility rates in parts of France and the UK will help to keep working-age population relatively high compared to the rest of the Community, a feature which should be particularly evident by 2015 (Graph 2).

The changing age structure of the Community's population has significant implications for social infrastructure. On the one hand, the number of young people requiring, sequentially, child-care, education and initial training, which is already declining, will continue to do so. The demand for social provision in this area may therefore decline (though there is considerable scope for improvements in provision in many parts of the Community).

On the other hand, the number of elderly and no longer active people is set to grow progressively, implying a need for increased health service provision, retirement homes and so on.

An OECD study³ of possible shifts in expenditure needs on education and health in 12 countries — including seven in the Community — in the next century (Graphs 3 and 4), suggests that if expenditure per head remains unchanged there will be a fall in education needs in all seven Member States, especially in Germany and Denmark. Health care, on the other hand, will assume greater importance especially in Italy, Netherlands and France, while in Belgium, Denmark and Germany the upward pressure will be partly offset by reduced health expenditure on declining numbers of young people.

In practice, the relationship between demographic changes and changes in future capital and other public expenditure will be affected by social and political considerations which may intervene, especially where spending reductions are in-

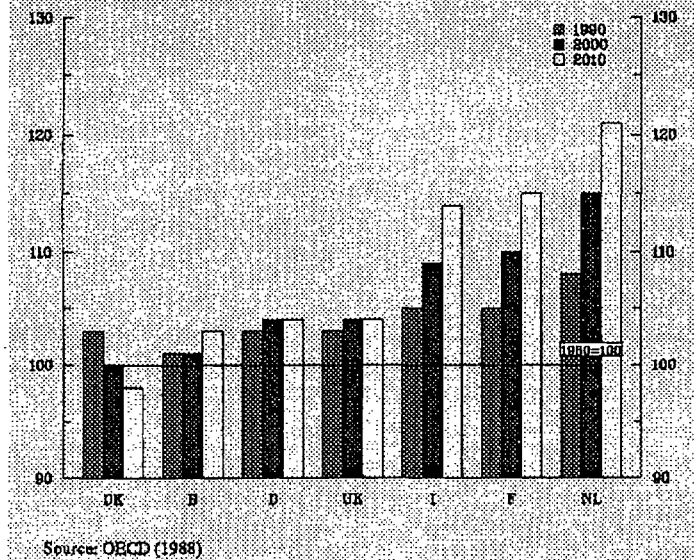
involved. Reduced pressures on education may be used as an opportunity to improve quality or to increase expenditure on training and re-training of older people. To the extent that increasing expenditures on health care cannot be offset by reductions in education, there will be an increased expenditure burden on the constant or declining proportion of the population of working age. This will have implications for the tax base — households and businesses — especially in the regions with an older age structure of population.

In general, with the population ageing throughout the Community, an increasing number of regions will need to adjust to a levelling-off or even a decline in population and possibly in labour force growth. The more acute problems arising from these developments, familiar to a few remote rural and some inner city areas will be a new experience for many.

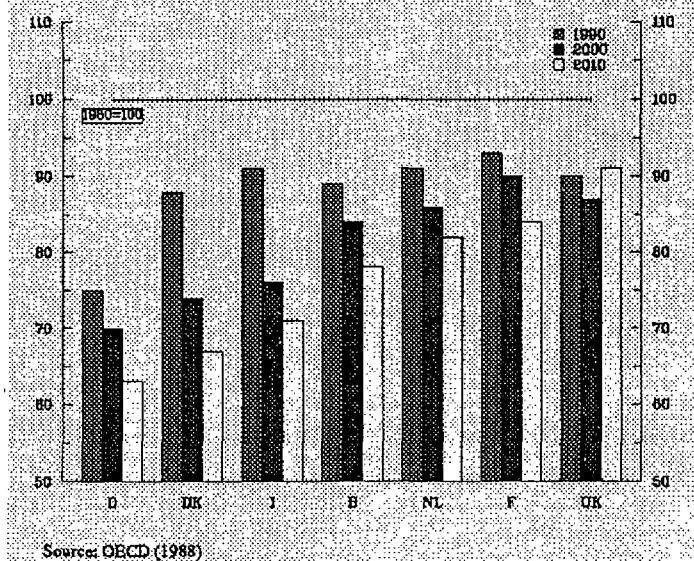
The world context

It is important to consider the developments in Europe in a wider context.

3 Implications of demographic change for health expenditure, 1990, 2000, 2010



4 Implications of demographic change for education expenditure, 1990, 2000, 2010



According to estimates (Graph 5), the population of the continent of Europe (excluding Russia) was some 492 million in 1985 (with the Community including Eastern Germany accounting for just under 70%) making it the fourth largest of ten regions of the world, behind East Asia (1,249 million), Southern Asia (1,070 million) and Africa (557 million)⁴. By the year 2000, however, constant population is likely to mean Europe falling to sixth place, having been overtaken by Latin America and South-East Asia. On these projections Europe would then account for 8% of the world's population, compared with 10% in 1985. By 2025, the European share is forecast to fall even further to around 6%, by which time the population will amount to a third of that of Africa, having been more or less the same in 1985.

These figures underline the challenge for the Community to maintain its economic dynamism in the face of considerable relative decline in population, especially of working age. They are also indicative of the likely migration pressures

which may in turn provoke further migration flows into the Community, given its relative prosperity and the possibility of future labour shortages.

Migration trends

Migration between Community regions

Migration inside the Community has historically been characterized by long-term movements from less developed to more prosperous regions. There was, however, virtual standstill in inter-regional migration in the 1970s and early 1980s and there are as yet no signs of a revival. Ireland apart, net migration from weaker regions has been close to zero and, in some cases, even slightly negative over the second half of the 1980s.

The scale of internal migration in the Community contrasts markedly with that in the US where the propensity to move is very high. While legal barriers to migration in

the Community have already been removed, linguistic and cultural barriers remain significant. The completion of the internal market is unlikely of itself to give rise to sudden migratory flows.

Regarding future migratory flows between regions, an analysis of current trends would seem to suggest the persistence of particular migratory pressures from:

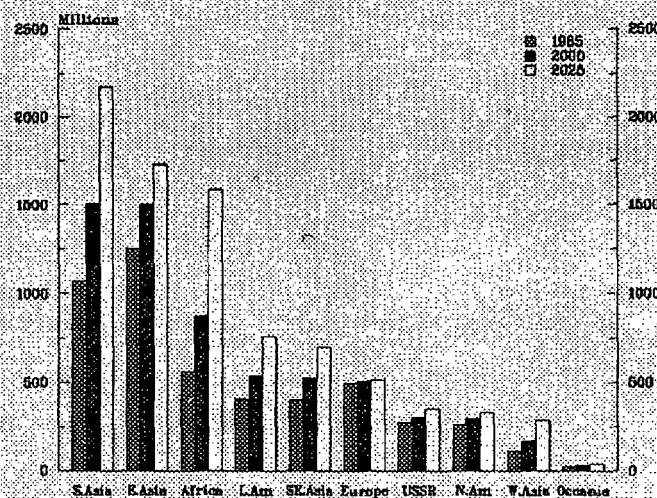
- Ireland where unemployment is expected to remain relatively high. Net outward migration has amounted to more than

0.5% of its population per year in recent years or half the natural growth;

- eastern to western Germany as the problems of regenerating the economy in the former persist. This is expected to continue at an estimated rate of 200 thousand people a year implying an annual loss in eastern German population of 1¹/₄% up to the middle of the decade.

In both these cases relatively unfavourable economic circumstances appear to be an

5 Population projections for various regions of the world, 1985, 2000, 2025



Source: United Nations

important motive for emigration. The effect of economic differences on migratory flows is not always decisive as illustrated in the case of Italy. Even with profound differences in unemployment rates, there has not as yet been a renewal of the traditional outward migration from the South to the North. The risks of such renewed migration are, however, considerable should labour shortages develop in the North while the South continues to experience a lack of employment opportunities.

In all three cases, the migratory flows would contribute

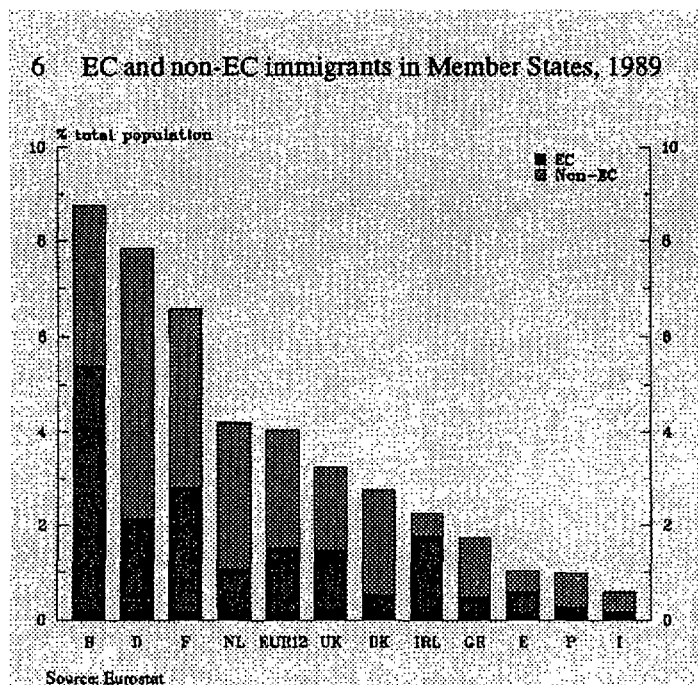
to a further concentration of Community population in the more urbanized areas especially in northern Italy and western Germany. The congestion in these areas is already considerable and further inflows of population would simply serve to exacerbate the situation.

The Community and third countries

While migration between the Community and third countries tends to be a two-way process, there has been a tendency for flows in one di-

rection persistently to exceed those in the other. This has resulted overall in a small but relatively continuous net inflow from third countries during the 1970s and 1980s. This steady inflow, averaging 100–300 thousand people a year, took the population born outside the Community to a total of around 8 million by 1988, or 2.5 % of the population, excluding non-registered immigrants.

It is impossible to predict with certainty how migration will affect the population of the Community over the next decade. Recent trends, however, give an indication of the pressures which might arise⁵. In 1989, the share of those born outside the Community in total population was highest in the former West Germany (5.7%), followed by France (3.8%), Belgium (3.3%), the Netherlands (3.1%), Denmark (2.3%) and the UK (1.8%) (Graph 6). In the other Member States, foreign population represented around 1% of total population or less. Much of foreign migration reflects historic ties between countries dating from colonial times. After the Second World War, economic growth and labour shortages



in Europe attracted large numbers of immigrant male workers from abroad (including, in particular, Turkish 'guest-workers' to West Germany). This first phase of immigration in a number of countries gave way to a second phase when the male workers were joined by their families.

With labour shortages turning to labour surplus in the 1970s and with the increasing public cost of accommodating migrant families, immigration policies in many Member States have been restrictive for some years now with the aim of bringing to an end the immigration of workers, especially the unskilled. Even so migration has continued. Since migrants seeking to improve their economic situation tend to be attracted by already established communities of their compatriots, existing patterns of migration are a guide to future inflows.

These patterns suggest continuing pressures from the Maghreb countries of North Africa where the trends for Tunisia, Morocco and Algeria suggest a doubling of population (from 58 million

to 103 million) between now and 2025⁶. These pressures are expected to be directed towards France and, to a lesser extent, Belgium and the Netherlands. Immigrants from Turkey and Yugoslavia have usually gone to Germany and, in the former case, also to the Netherlands, France and Belgium.

Further migratory pressures are likely to originate from Central and Eastern European countries, as well as from the newly independent states of the former USSR, depending on their success in achieving a transition to a market economy and creating new employment opportunities to replace the large number of jobs which will be lost. Germany has a special admission policy towards ethnic Germans living mostly in Central and Eastern Europe, accepting some 380,000 of these in 1989 and a further 230,000 in the first half of 1990. Further immigration to the Community of large numbers of the estimated 3 million or so people of German descent living to the East can be expected in the future.

In the past immigrants to the Community have generally

shown a particular preference for the highly urbanized and more industrialized areas, and this seems to have increased in the second half of the 1980s. The 500 thousand immigrants in 1988 and 850 thousand recorded in 1989 (excluding immigrants from East to West Germany) have entailed increasing social, economic and budgetary problems for local and regional authorities and there is an increasing need for a more concentrated effort throughout the Community to take measures to encourage assimilation. This now includes some southern parts of the Community such as Greece and southern Italy where numbers of East Europeans are growing steadily.

The development of new approaches on the part of cities towards the integration of existing and potentially growing ethnic communities is increasingly required. Action at the Community level including closer liaison between regional and local authorities can contribute towards solving the problems encountered and help to develop new strategies.

Footnotes

- 1 *These and other statistics in this chapter, excluding population projections, are obtained from the Statistical Office of the European Communities (Eurostat), except where otherwise stated.*
- 2 *Netherlands Economic Institute (1980), Demographic Evolution through time. Study financed by the European Commission.*
- 3 *OECD (1988), Ageing population: the social policy implications. Paris.*
- 4 *Population projections of the United Nations Organisation quoted in Commission of the European Communities (1990), L'Europe dans le mouvement démographique.*
- 5 *Based on Heins (1991), Migration patterns in the European Community during the 1980s and the outlook for the 1990s. Study financed by the European Commission.*
- 6 *La baisse de la fécondité arabe, Population (1988), N°6, quoted in Le Monde, 15 March 1991.*

Production and Location Patterns

Economic growth and prosperity is spreading outwards from its traditional heartland in northern Europe. A new arc of development is being created running from northern and central Italy through southern France to northern and eastern Spain. Factors such as congestion and unfavourable demographic trends in northern Europe are persuading firms to seek new locations elsewhere. A wide range of factors determine where they end up. Costs of production are important but firms also seek access to a pool of skilled labour, good transport and telecommunication links and a pleasant living environment with social amenities. Regions need to be able to respond accordingly, subsidies for capital investment are not enough. Community-wide differences in education and training, R&D capacity and basic infrastructure will need to be further reduced if a more even spread of economic activity and development is to occur.

The distribution of economic activity within the Community varies considerably between Member States and regions. This uneven pattern is, in turn, the outcome of the differential development of the various productive activities and their locational characteristics.

Where activities are carried out under competitive conditions, as in most of the manufacturing and producer service sector in the Com-

munity, there are clear incentives encouraging technological innovation in new products and ways of producing them. New technological developments can give firms more freedom over where they locate, whereas previously they might have been tied to particular places.

Moreover, with increasing integration in the Community, firms have potentially wider geographical horizons than ever before in

choosing where to locate production.

These developments and their likely influence on the future geographical pattern of economic activity across the Community are considered below.

There are four main themes¹:

- the factors that have shaped the location of economic activity in Europe;

- the recent changes in these factors;
- the likely effect of this on particular economic activities;
- regional policy implications of these changes.

Past developments

The development of new technologies in the nineteenth century, such as steam power or rail, created the conditions for the development of new products and new mass production methods. Production, however, had to be located close to energy sources, such as coal, and raw material supplies. Transport systems were constructed to link these sites to each other and to markets. The initial industrial development which occurred in the UK later spread to places on the continent, Belgium and the Ruhr, where raw materials as well as capital and suitable conditions of production were available.

This early phase of industrial development based on the exploitation of indigenous resources began to change with the development of plant and equipment for the large scale production of consumer goods. Such plant could potentially be located anywhere opening the way for new regions and nations to produce goods and reducing their dependence on imports. This phase of development was characterized by increasing investment by large firms often near to new markets in major areas of population.

With the increasing efficiency of means of transport, the location strategies of firms became increasingly determined by cost considerations with firms moving production to areas with lower labour, land and other costs. This was particularly so in the case of international moves, whereas inter-regional variations in costs were of lesser significance, permitting industries to select their final location within a given country on the basis of other, often fortuitous, factors. Institutional factors were also at work encouraging a more concentrated pattern in some countries (eg France) and a more

dispersed pattern in others (eg Germany).

The present regional pattern in the Community

Within Member States there has been a historical tendency for industry to concentrate in regions where it was initially established. Investment in new industries tended to be located in existing industrial centres, benefiting from both a high concentration of demand and an established network of suppliers. Despite the dispersal of manufacturing industries during the 1960s and 1970s, with the growth of new sectors such as light industry, financial services and tourism, investment has continued to take place disproportionately in established centres.

The traditional core area of economic activity lies in the triangle bounded by Paris, London and Amsterdam and in the Ruhr Basin. In the 1980s, the core has extended

southwards, taking the form of an arc running from the English Midlands through Benelux and the German Rhineland to the North of Italy. More recently, it is becoming apparent that a second arc of rapidly growing regions (based on quite different forms of economic activity), running from northern Italy through southern France to northern Spain, is emerging² (Maps 7 and 8). The core of economic activity in Europe is likely to be split between these two areas over the next decade.

This changing characterization of the European centre of economic activity over time is a reflection of the dynamic nature of economic development. Some relatively peripheral areas have experienced rapid economic growth while other areas have suffered industrial decline.

Much of the activity in the southern development pole is relatively new. For example, in southern France an active public policy, an attractive environment, the presence of specialized know-how and a technology park have encouraged considerable investment by high-tech companies. The

region of Languedoc-Roussillon experienced GDP growth of nearly 20% in real terms between 1985 and 1989 compared to a Community average of around 12%. In Catalonia there is large-scale production of chemicals and electronics, while Madrid has become a significant financial and business centre. These and other East coast regions such as Valencia and Murcia have seen GDP grow by between 20 and 25% in real terms between 1985 and 1989³. In much of northern and central Italy economic growth is based on the highly specialized, mostly small-scale, labour-intensive, production of traditional products such as textiles, clothing, shoes, food and drink.

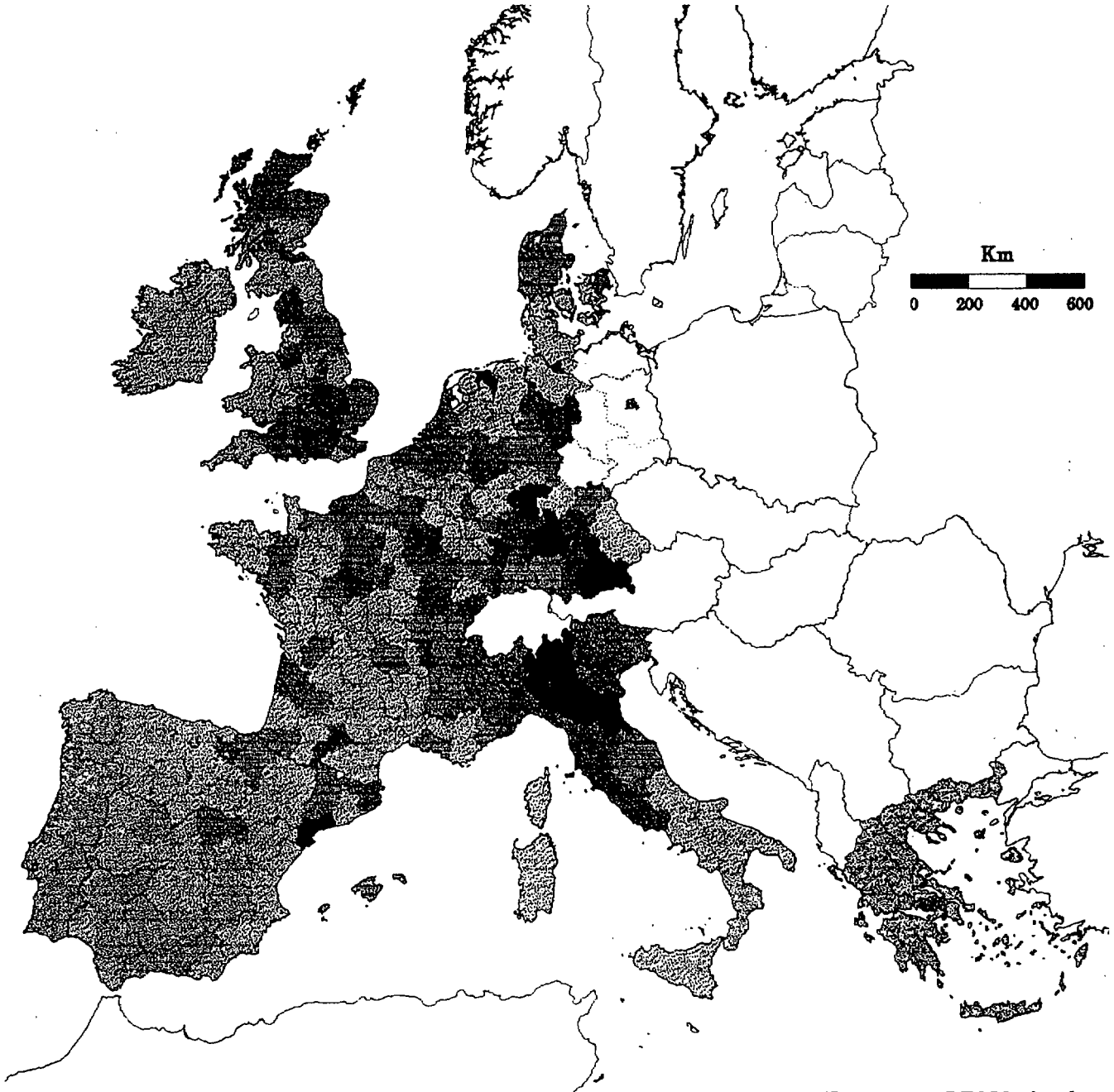
Outside these core areas there are fewer significant economic developments, although there are notable exceptions such as Silicon Glen in Scotland, where foreign high-tech electronics production is concentrated, Rennes in France, Pais Vasco in Spain and South Wales where many manufacturing multinationals are located. The peripheral regions of the South of Italy and Spain, Ireland and Greece, tend to have a relatively large agricultural sector

and a weak economic and technological base. There are exceptions here also with considerable direct investment by multinationals, especially in Ireland and parts of southern Italy, while other parts have seen the development of many smaller enterprises (Maps 9 and 10).

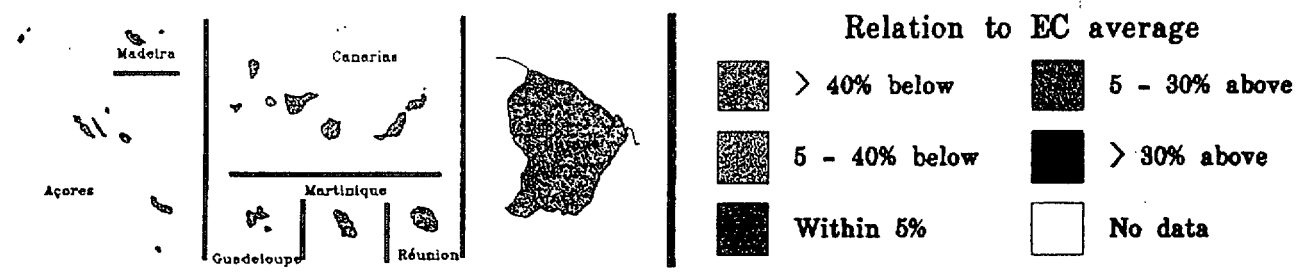
Emerging changes in the structure of production and location

Throughout the twentieth century, production in many sectors of the economy has been increasingly dominated by a declining number of large enterprises. The growth of firm size represented an inevitable outcome of competition where economies of scale could provide important cost advantages. The organizational structure of these large firms tended to evolve over time, often to take the form of a hierarchical division within companies according to function: headquarters,

GDP per capita, 1989



Source : Eurostat - REGIO database



R&D, assembly and distribution. More recently, the evidence suggests that as a result of the demands of consumers for lower prices, better quality, more variety and faster delivery, the dominant system of production based on economies of scale is being gradually replaced by a system based on economies of scope — ie production geared to meeting a varied demand with shorter production runs. In contrast to previous methods of production, this system is characterized by flexible production methods and the ability to alter product and process specifications rapidly. Key features are:

- more programmable computerized, general purpose equipment;
- smaller, more specialized workplaces and firms, and greater reliance on subcontracting;
- collective organization instead of hierarchical control;
- greater reliance on highly-skilled and experienced staff;
- more temporary and part-time hiring and

more relaxed rules for assigning workers and managers to tasks.

The development and application of new technologies are integral elements of these new production systems. The increased need for innovation implies a considerable expansion in the knowledge content of products and processes, which has resulted in a strong increase in non-production activities, both inside and outside firms. Information has become a crucial production factor and has encouraged the emergence of new producer services.

The growth of flexible production systems and the increasing demand for specialist producer services has offered new opportunities to small and medium-sized enterprises (SMEs). These have also benefited from a growth in the demand for customer services (leisure, transport) so that the formation of new SMEs has been rising steadily throughout the Community, at a net rate of 3% per year since the mid-1980s. Firms employing up to 250 people now account for 98% of all enterprises

in the Community and over 70% of employment.

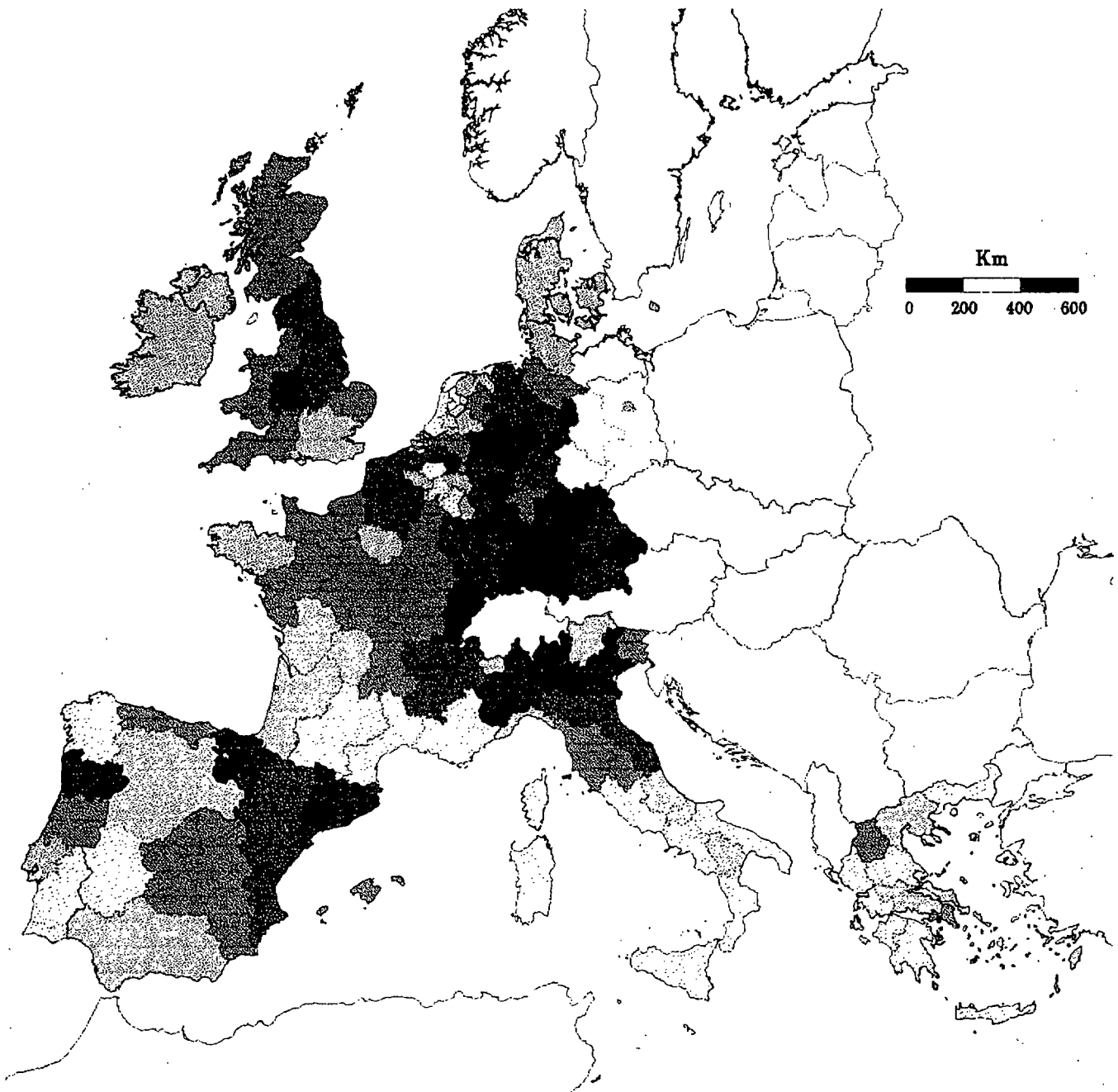
Specialization, the high cost of R&D and marketing, technological improvements in transport and telecommunications, and changing competitive relations have stimulated both large and smaller firms to operate across national frontiers, not just in seeking markets but also in forming investment strategies and business alliances with foreign partners. To market certain products on a profitable scale increasingly requires a global strategy.

The new location factors

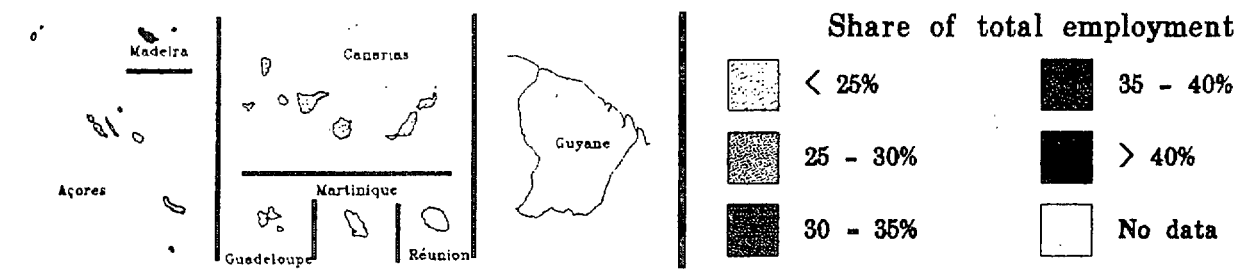
General trends: greater mobility

The changing structure of economic activity has given much more freedom of location than was the

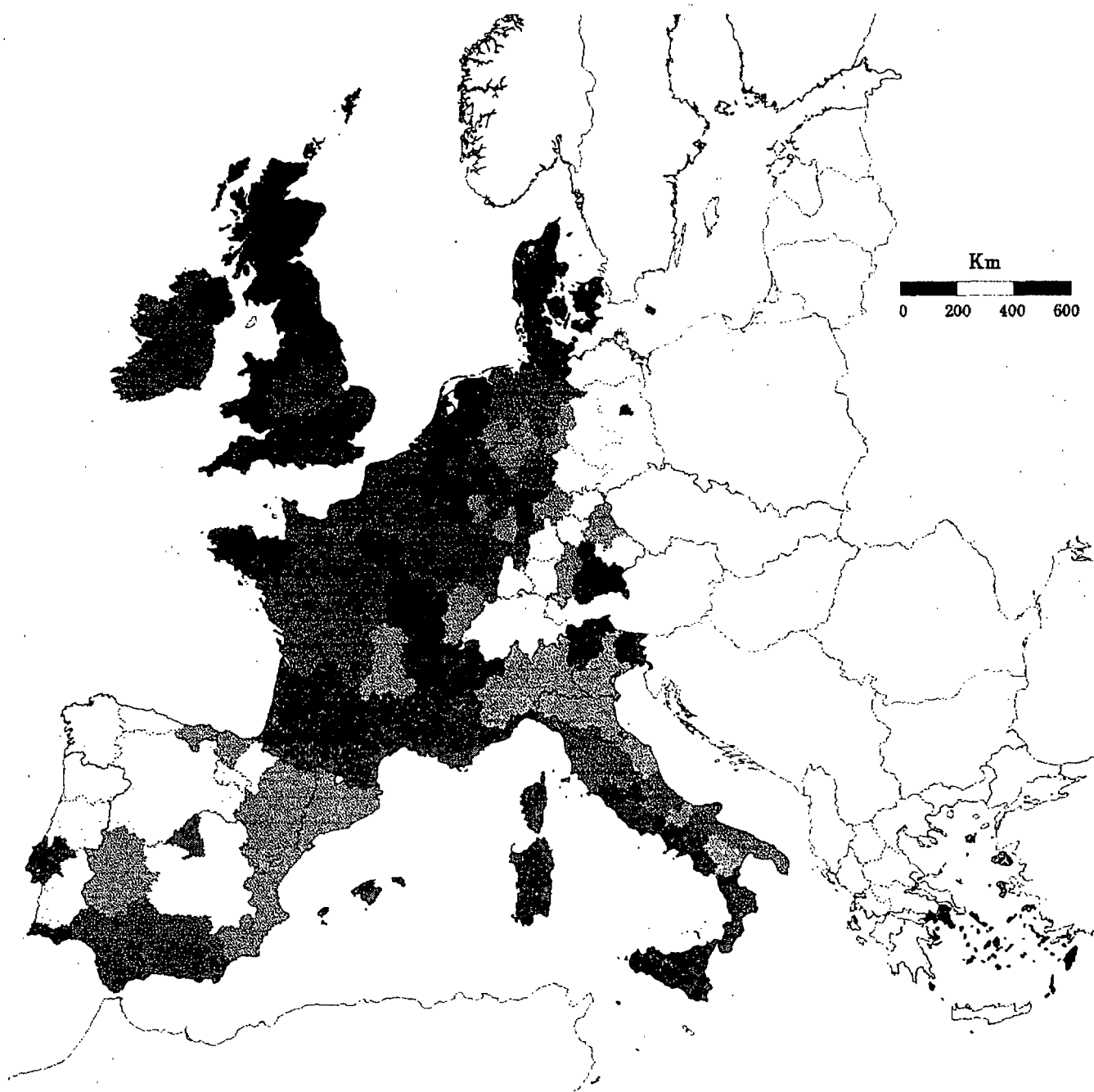
The importance of industry in employment, 1989



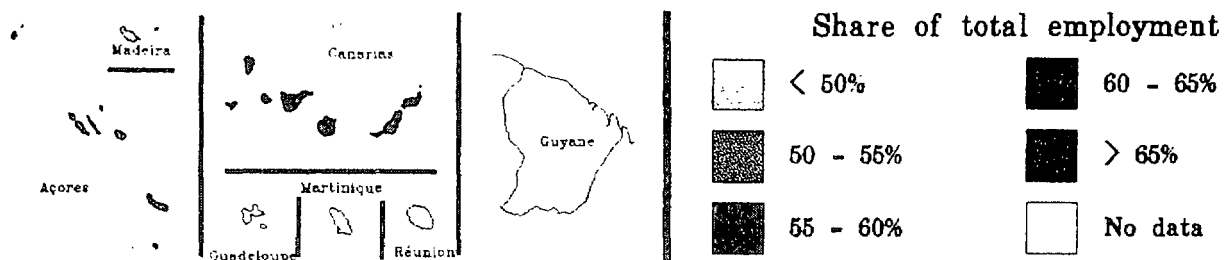
Source : Eurostat - REGIO database



The importance of services in employment, 1989



Source : Eurostat - REGIO databases



case in the past. At the beginning of the 1960s, for an estimated 70% of total Community employment, there was limited or no flexibility over choice of location. By 1990, changes in economic structure — in particular, a relative decline in industries dependent on natural resources and in services tied to local markets — meant that this proportion had fallen to 50%.

According to a new Commission study⁴, firms are influenced by a wide range of location factors in deciding where to invest, and the factors which are of most importance vary considerably between projects. In general, location factors fall into three groups: market-related factors (access to EC market, strong national market, proximity to major customers and suppliers, general economic climate), the transport and communications infrastructure and labour. When it comes to the final choice of location, qualitative factors appear to be more important than quantitative (cost-related) factors, firms being prepared to trade off cost disadvantages to secure qualitative advantages

such as a pleasant climate and a good general living environment.

The growth of knowledge-intensive activities in manufacturing and services has made the quality of manpower extremely important for firms. Highly qualified and experienced staff represent a key resource to modern firms and their residential preferences increasingly exercise an influence on where firms tend to locate, with attractive and non-polluted living and working conditions a high priority.

Firms also recognize that such factors can have a positive effect on customers⁵.

These aspects have contributed to the growth of the southern arc stretching from central and northern Italy through southern France to northern Spain. In these areas labour and land costs are some 30% below the northern core triangle of the Community. Improved transport systems in these regions — Tuscany, Bourgogne and the areas around Barcelona and Marseille — are likely to do much in future to at-

tract industries where cost considerations are especially important.

The overall economic climate is a key factor in increasing the level of mobile investment. Higher levels of economic growth are associated with fewer closures and increased rates of start-up and relocation. The completion of the internal market programme has been estimated to raise Community GDP by 4–5% over the medium term and to create nearly 2 million new jobs. Its regional impact will, however, depend on the overall competitiveness of a region's economy and its ability to exploit any special advantages it possesses. In general, greater adjustment and restructuring problems are likely to be experienced in sectors and regions which have depended on markets characterized by non-tariff barriers and national protection from competition.

The possible enlargement of the Community should also affect location patterns. The entry of Scandinavian countries and, perhaps, some of the newly independent Baltic states, could cause the traditional

northern core to be extended northwards with particularly favourable implications for Denmark and northern Germany while the entry of Austria will extend the southern core. Developments in the former Eastern Bloc might also benefit neighbouring regions in the southern areas, especially where there are good transport links.

Location trends by function and activity

The location behaviour of firms can be analysed by function (headquarters, R&D, assembly (where investments from outside are a major factor) distribution and so on) and by activity (or industry). The major trends are viewed from both perspectives below. Given the large number of activities which might be included, the analysis is restricted to two sectors in manufacturing: textiles, clothing and footwear (a traditional industry undergoing extensive restructuring) and electronics and in-

formation technology (a new growth sector), and two sectors representative of the growing significance of services: financial services and tourism.

Because of its particular importance, direct investment in the Community from outside is considered separately.

Functions

Headquarters

It is unlikely that major changes will occur in the distribution of European headquarters. The importance of face-to-face contact means that these will continue to concentrate around existing clusters of economic, political and administrative decision-making in the metropolitan areas of Germany, Benelux countries, London and around Paris.

As a result of the impending completion of the single market and growing internationalization, companies are beginning to centralize management

functions in order to reduce costs by eliminating unnecessary duplication of facilities such as offices, computers and legal services. At the same time, a number of US companies are beginning to delegate management functions to their European branches.

These developments mean a further enhancement of metropolitan areas, the main requirements being efficient international transport links, good telecommunications, a competitive tax regime, a well-educated workforce and highly central locations. However, high land and labour costs in these areas are encouraging dispersal of back office functions, where there is no need for direct contact with customers, out of central metropolitan areas.

Research and Development Centres

Traditionally R&D activities used to be attached to company headquarters so as to maintain close contact with main management. The evidence suggests that today it is only so-called

strategic research which is undertaken in a central corporate laboratory and that by far the greater part of research — an estimated 90% — has become more mobile. Most R&D is carried out in the northern Member States where it is concentrated in metropolitan areas, intermediate areas around universities or important production facilities (for example, Grenoble, Sophia Antipolis, Cambridge and the bioscience triangle of Hannover-Braunschweig-Göttingen). In peripheral areas, however, activities such as biotechnology, which do not require large pools of skilled labour or frequent contact with universities, can be carried out (see Box: Research and innovation).

Distribution

With manufacturing in large firms becoming organized on a European scale, production is tending to be concentrated in these firms in a few locations. As a result the distribution networks have to cover a wider geographical area. The completion of the in-

ternal market will intensify this trend insofar as it brings about further increases in intra-Community trade. Associated with this trend, large companies are developing European distribution centres, located in regions with good communications and a strategic position in the EC. Up to now this has tended to favour core areas, such as the Netherlands, in particular, but also Belgium and parts of Germany and the UK.

Small and medium-sized enterprises

The rate of formation of new SMEs has tended to be lower in the traditional industrial centres of the Community, the old specialized industrial areas now in decline⁶. Instead such firms have shown a preference, first, for the large urban areas where services and light industry predominate and, secondly, for certain rural areas, in the South of France, East Anglia in the UK, northern Italy and Jutland in Denmark, for example, where there has been little or no previous industrial tradition.

This spread of SMEs into rural areas is of particular importance for the development of economic and social cohesion in the Community. Such moves depend heavily on the availability of efficient transport and telecommunications as well as on general business conditions.

Activities

Textiles, clothing and footwear

This traditional sector remains highly important to the European Community's economy, contributing nearly 4% of GDP and providing some 2.5 million jobs. It is particularly important in the South of the Community — in Portugal, Greece, Spain and Italy — although there are important regional concentrations of textiles, clothing and footwear production in virtually all Member States.

The sector has undergone extensive restructuring especially during the recession at the end of the 1970s and beginning of the 1980s losing an estimated 25% of total employment between 1980

Research and innovation

The relationship between investment (public and private) in research and development, innovative products and processes and regional economic growth is well established. It is not an accident that those regions which have relatively high levels of economic growth are also those which have high levels of investment in research and development and innovation. Investment in these fields is a prerequisite for sustained regional economic development. This includes investment in higher education which plays a pivotal role in the dissemination of new ideas and new technology.

But just as disparities exist in economic growth performance throughout the Community's regions, so disparities exist in regions' research capacity and potential. Studies which the Commission has carried out show indeed that the scale of the disparities in R&D are far greater than the socio-economic disparities between regions. Reducing the disparities calls for a wider spread of research and development infrastructure, qualified personnel and a technology transfer capacity.

In the Community, three-quarters of total (public and private) R&D expenditure is concentrated in Germany, France and the UK and is highly unevenly distributed between regions within Member States.

Companies in the electronics and information technology sectors often cluster in a particular location. This can sometimes be explained by the presence of well-established and reputable centres of excellence or university research departments, which provide qualified personnel as well as undertaking innovative projects. Concentration can become a self-reinforcing process as good research results encourage further investment.

This tendency towards concentration raises important questions for public policy. Although it is clear that all regions cannot have similar levels of research infrastructure, each should at least have the technology transfer structures which will allow it to use to its advantage the fruits of research elsewhere. The European Community has a role to play in this regard. Through the research projects under the R&D framework programme and the Structural Funds, including the STRIDE initiative, the Commission is supporting a better regional balance. In addition, the Community's COMETT education programme assists the rapid dissemination of research findings, while the recently launched SPRINT programme seeks to strengthen the infrastructure for innovation through establishing intra-Community networks and includes specific actions for less favoured regions.

and 1988. This was particularly true of northern, high-wage producers where there were significant job losses in basic sectors — staple fibres, mass-produced textiles and clothing — either because of the introduction of automated techniques or because of the shifting of production to low-cost countries outside the Community, in the Far East, in particular.

With the economic recovery in the second half of the 1980s, producers in the lower-wage parts of the Community, such as in Spain and Portugal, prospered. At the same time, traditional producers in higher-wage areas were able to consolidate their position through the application of high technology or by moving into specialist and/or high-fashion markets. Notable concentrations of producers in the latter category are found in Manchester, Leeds, the area west of the Rhine and Ruhr, south of Stuttgart, north of Munich, Paris, Lyon, Bologna, Florence and Rome.

With economic growth faltering at the beginning of the 1990s, there is evidence

of a further wave of restructuring with a further relocation of production to low-cost countries outside the Community, including, significantly, China and a new generation of Asian suppliers in Bangladesh, Malaysia, Indonesia, Sri Lanka, Pakistan, Singapore and Mauritius. Developments in telecommunications and computer technology have increased the accessibility of distant locations allowing, for example, the instant transmission of clothing designs from the European headquarters to screens in, say, Asia which are in turn linked to CAD/CAM cloth cutting equipment. For the future, the countries of Central and Eastern Europe also offer new low-cost locations for textile production which are considerably nearer to the Community's markets. Portugal, with around 200 thousand employees in the sector contributing 15% of GDP, is particularly vulnerable to these changes.

Much also depends on the regime which succeeds the Multi-Fibre Agreement under which the EC has bilateral arrangements with 22 countries controlling imports. Easing of import quotas will put further

pressure on Community producers.

With basic production of textiles and clothing in the Community under increasing threat, it is imperative for producers throughout the Community to concentrate on design, exclusive fashion and other specialist markets. This has been the approach adopted by Italian producers whose position is among the strongest in the Community.

High-technology industry

According to recent estimates, the electronics and information technology industry contributes about 5% of Community GDP. Its growth rate was around 15% a year during the 1980s and is expected to continue to be high. By the end of the decade, its share of GDP is forecast to double to 10%, outstripping major industries such as chemicals and cars. In terms of organization, the industry is characterized by extremely large multinational corporations alongside a mass of small and medium-sized enterprises including micro-firms of

perhaps one or two people which have often been the industry's source of innovation and entrepreneurial flair.

The industry in the Community faces considerable foreign challenges from Japan and the USA. The completion of the single market will increase the opportunities for the growth of a Community industry capable of meeting these challenges with the help of a number of supportive measures in R&D, training, networking and technology take-up.

A common feature uniting the disparate group of activities included in the term high-tech industry is the importance of research and innovation. As a result, the industry is particularly dependent on highly qualified, professional staff. At present, it is estimated that the industry employs 800,000 highly-skilled people. Given their relative scarcity, such people have greater freedom to dictate where they wish to work, which has tended to reinforce the position of established high technology centres located in attractive areas.

For the future, with further European economic integration, some firms may look beyond national boundaries to the European 'sun-belts' to satisfy the residential preferences of staff. This would tend to sustain the growth of high technology in regions such as Rhône-Alps, Lombardy, Valencia and Bavaria, and the scenically attractive regions of the Atlantic coast.

Financial services

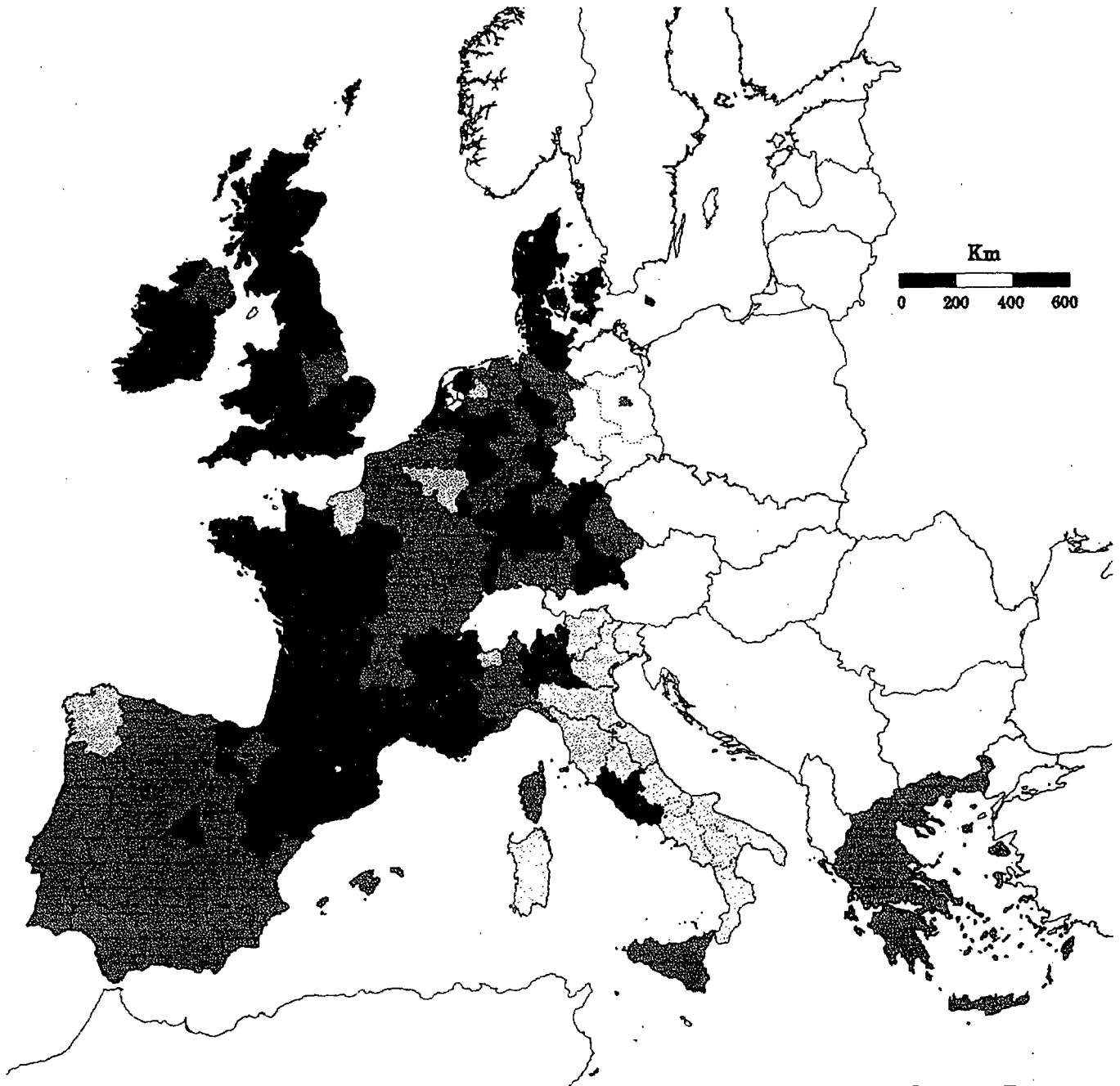
In 1987 financial services accounted for around 7% of employment and GDP in the Community. At the beginning of the 1990s, the sector appears to be undergoing a period of consolidation following rapid growth in the 1980s. In general, future prospects will tend to differ between those parts of the industry supplying specialist services to companies (corporate business, interbank business, securities-related business and international services) and those supplying retail services to households (Map 11).

The completion of the single market in financial services is likely in the

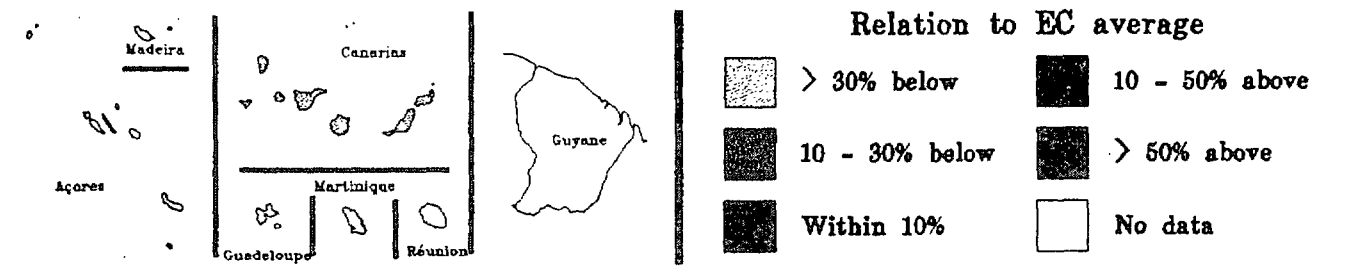
short-run to increase concentration in the specialist markets. In geographical terms, this will tend to secure the position of the major existing financial centres of London, Paris, Frankfurt and Amsterdam. The prospects are, however, favourable for the development of a southern axis in specialist financial services based in Milan and Madrid, with Spanish banks also joining in the rapid expansion of services in neighbouring Portugal. Other financial centres such as Dublin, Brussels, Copenhagen, Luxembourg, Edinburgh, Lisbon and Athens will have opportunities for growth through specialization in niche markets.

In wholesale and retail banking, developments in telecommunications and computer networks have increased mobility. Back offices have been relocated to more peripheral locations where labour is abundant, and rent and other costs are lower. The advent of teleworking will enhance possibilities further, permitting accounting, settlements, insurance claim processing, and so on to be undertaken even in remote rural areas.

The importance of employment in financial services, 1989



Source : Eurostat



Tourism

Tourism has been one of the most rapidly growing sectors in the Community and will continue in the 1990s to be a major contributor to output and employment. In 1989 it accounted for around 5% of Community GDP and 6% of total employment growth. There are, however, significant differences in its importance between Member States, with a strong concentration in the South. Tourism is particularly important in Mediterranean countries, accounting for over 9% of GDP in both Spain and France and 10% and 7% of total employment. In Portugal, it accounts for 6% of GDP and 8 1/2% of employment and in Greece 7% of both GDP and employment.

The continuing growth of disposable income will contribute to increased demand, especially where complementary investment in transport links and in tourist centres themselves is undertaken.

Future opportunities for growth appear to lie in improving the quality and availability of tourism fa-

cilities, to achieve a more even geographical spread and to even out the seasonal peaks. This applies both to northern parts of the Community, through, for example, the growth of week-end breaks, conferences and so on and to southern parts, through, for example, the growth of winter holidays in places where the climate is favourable.

Direct investment in the Community

Since the Second World War, Europe has experienced a significant inflow of direct investment from outside, attracted by financial incentives, availability of a skilled labour force, access to the European market, good transport and communications and favourable tax regimes. More recently, direct investment by Japanese companies has become increasingly important. The existing pattern of inward investment is not expected to change markedly, with one-third going to the UK, which for US companies has the advantage of the same language and a

similar culture. The next biggest recipients are Germany (Baden-Wurtemberg and Bavaria replacing Nordrhein-Westfalen) and the Netherlands (Brabant/Limburg).

In the future, inward investment to the Community, particularly by Japanese companies, is likely to increase. In the period 1986 to 1989, Japanese investments in manufacturing already rivalled in number (147 plants opened) those from the US (174 plants opened). More significantly, perhaps, Japanese investments created 23 thousand jobs as against 17,500 in the new US plants.

The growth in Japanese investment reflects a number of factors, such as:

- misconceptions about a 'Fortress Europe';
- the desire to become insiders in a foreign market, to understand better the demands of customers and offer them improved service and support;
- the desire to tap into international scientific networks;

- pressure from foreign host governments on Japanese companies to do more development work locally;
- pressure from certain interest groups in the Community to increase the local content of products sold in Europe.

Although the greater part of foreign investment is concentrated in the core area of Europe, certain peripheral regions have attracted a significant proportion, for example in electronics in Ireland, Scotland and Wales and in the car industry in southern Europe. In Portugal and Spain, inward investment is mostly of European origin. Up to now the fears of southern European countries that the opening of the Central and Eastern European market will divert investment have proved unfounded.

Regional implications

The wide variety of location requirements for firms

(large and small), industries and the various productive functions, led a recent study of the attractiveness of European regions to corporate investors to conclude that all regions have the potential to attract mobile investment⁷.

The locational behaviour of firms will, at least in the short-term, be affected by a degree of conservatism and inertia which tends to favour the central areas of the Community where business is already concentrated. Analysis of functions and activities and of foreign investment presents a mixed picture of concentration and decentralization trends. In overall terms, the key fact remains that the proportion of employment which is potentially mobile has been rising and, over the past decade, new regions of the Community have become dynamic economic centres.

Against this background, Community regional policies have been attempting to promote economic development using an approach which balances the need to create the conditions for new economic activity to take place (eg provision of infrastructures — see Box, Section B: Infra-

structure and the Structural Funds — and training measures — see Box: Education and Training) with direct support for productive investment in enterprises (see Box: Productive Investment and the Structural Funds).

There is also an important role for regions themselves to promote the features of their area to maximum advantage and demonstrate that the necessary services are available for new business enterprises to flourish. Suitable social and leisure facilities and good communications are likely to be important in attracting key workers from outside. Professional, informed promotion may well have as great an influence as financial incentives in attracting investment that is long-term and capable of generating lasting benefits for the region. The Community could also consider the reinforcement of integrated forms of assistance, of which aids to capital investment would be only one component, in order to improve all aspects of the business environment in weaker regions, including the necessary conditions to attract and retain a skilled labour force.

Education and Training

The growing significance of research and development (R&D) in maintaining enterprise and regional competitiveness increases the need for a skilled and qualified workforce. A skilled workforce is necessary both to carry out this R&D and to make effective use of the new applied technologies which result.

These technologies are diffused at an increasingly rapid rate. Enterprises and regions have to adapt rapidly to changing products and processes in order to remain competitive.

Regional labour market studies show that all regions are suffering from skills shortages, often in areas which are of strategic importance for the development of the regional economic base such as engineering, management, marketing and quality control. In the weaker regions of the Community, skills shortages often accompany rates of unemployment of more than 15%. These regions sometimes experience a skills drain as qualified labour migrates to more prosperous areas. It has been estimated that in Ireland, for example, a quarter of those who graduated from university during the 1980s now work abroad. Skills shortages also arise in regions undergoing rapid growth, such as in Valencia or parts of Ireland, where employment in traditional agricultural activities is giving way to new industries and services.

The evidence points to wide disparities in education and training systems between the regions of the Community. The number of pupils, trainees and apprentices aged 15 to 19 years varies from less than 40% of that age group in Portugal to more than 85% in Germany, the Netherlands and Denmark (Dehnenbach R. (1990) Human capital and related infrastructure endowments and investment requirements in problem regions. Study financed by the European Commission.)

The disparities in participation in education and training are related to differences in infrastructural provision, with appropriate facilities to supply full-time training being virtually absent in the case of Portugal and Spain.

With growth of knowledge-intensive industries, higher education is becoming increasingly important. It is central in terms of producing scientific and technological breakthroughs and in educating the professionals who must be able to handle and apply the innovations that follow.

The effects of the single market on skills profiles are expected to be important since they will not be confined only to people whose work takes them, if only for a short period, to another Member State. In practice, freedom of movement will generate increased competition between categories of labour, bringing about changes in skills profiles even for those not involved in job mobility and exerting pressure towards raising standards, expanding skills and increasing the capacity to adapt in general.

In recent years, the pace of technological change coupled with the demographic trends (ageing population) has served to underline the need to establish new patterns of relations between schools/colleges and enterprises, leading often to new forms of partnership. The need for such cooperation is already widespread at the level of higher education, especially in links with research, and the role of such cooperation as an interface mechanism at the regional level for matching skills supply with market demand is fundamental to economic growth.

In the Community in general, there seems to be a lack of coordination and planning between those requiring skilled labour — especially small and medium-sized enterprises — and the authorities charged with meeting their needs. Even in northern regions the evidence suggests that few companies take an active approach to training by building links with schools and colleges, for example.

The Community attaches considerable importance to improving the quality of the labour force. In the regions whose development is lagging behind the Community through the European Social Fund plans to spend some 10 billion ECU between 1989 and 1993. The emphasis is on the promotion of vocational training especially to meet the needs of growth sectors and to improve the qualifications of those who provide training. This includes the financing of part of the national secondary education system devoted to (post-compulsory) vocational training.

Some 1 billion ECU is being spent in the traditional industrial regions and just over 400 million ECU in the rural regions between 1989-93. Particular importance is attached to the support of small and medium-sized enterprises to promote diversification in the economic base of these regions. These actions are supported by a number of initiatives with a regional dimension such as Euroform, which promotes transnational partnerships among vocational training professionals, NOW which promotes equal opportunities for women and Horizon which seeks to improve the integration of disadvantaged groups into the labour market.

At the Community level a number of programmes are aimed at different client groups and at developing different types of training, including PETRA which offers young people further vocational training after full time education and also promotes cooperation between organisations in providing training. LINGUA aims to improve language skills in the Community; ERASMUS promotes exchanges of students, improves freedom of movement in the Community and develops links between higher education institutions; COMETT seeks to develop training in advanced technology on a trans-national basis, BUROTECNET also funds exchanges in the field of technology training and FORCE aims to develop continuing training for employees.

The demographic trends indicate that there will be fewer and fewer young people in the Community in the years ahead. For every 100 young people aged 15-19 years in 1990 there will be 87 in 1995 and 82 in the year 2000. As a result, more attention will need to be given to the task of convincing young people of the long-term value of training so as to counter the financial and other attractions of entering employment at the first opportunity. This is a challenge for the Community as a whole affecting also the weaker regions in their efforts to achieve the educational and training standards achieved in the regions best endowed in this respect.

Productive investment and the Structural Funds:

Examples of Community assistance to promote business investment, business services and support infrastructure.

In the regions whose development is lagging behind (Objective 1 of the Structural Funds) Community assistance for operations adopted in relation to business investment, services and support infrastructure — measures to support productive investment — totals some 3.5 billion ECU since 1989. The major programmes adopted are set out below :

Member State	Programme	Business Investment	Business Services	Industrial sites and infrastructure	Total
		million ECU			
I	Industrial zones			114	114
I	Industry & services	167	37		204
IRL	Industrial Development	237	254	41	532
UK	Industrial Development	20	35	19	74
P	Regional Aid Scheme	406			406
P	Aid Scheme for Commerce		24		24
P	Support Infrastructure			323	323
GR	Industrial zones	10	14	56	80
E	Regional Aid Scheme	183			183

The aid schemes are designed to achieve similar aims although they are adapted according to local circumstances. These aims include : helping industry to become competitive in the context of the single market, encouraging indigenous enterprise, attracting mobile investment, strengthening the technological and marketing base of companies, promoting tradeable services. In many cases, the programmes are supported by measures to improve human resources. For example, in Ireland an additional 485 million ECU of Community assistance has been committed for measures to provide a highly qualified pool of labour in all areas relevant to the success of Irish industry.

In the old industrial regions (Objective 2 of the Structural Funds), Community assistance to investment in industry and services totals some 300 million ECU. Assistance to promote the development of business services, including management consultancy, marketing, technology transfer and innovation services make up a further 180 million ECU. Actions of this kind figure prominently in all the Objective 2 programmes and account for over half the assistance in Belgian programmes and more than 40% in the German and Danish programmes.

Support infrastructures also occupy an important place in Objective 2 programmes. Community assistance here totals around 460 million ECU. Under these programmes not only new industrial sites are created, but also disused and derelict sites and buildings associated with traditional industries in decline are restored for use by new firms.

Footnotes

- 1 *The analysis which follows is based on the preliminary results of NEI/Ernst and Young (1991), New location factors for industries and services. Study financed by the European Commission.*
- 2 *See also Nam C.W. et al (1991), The competitiveness of EC regions in the nineties. An evaluation of established and up-and-coming EC regions, in Kemmel P. (ed) The single European market in the nineties. IFO Institute. Munich.*
- 3 *Eurostat*
- 4 *NEI/Ernst and Young (1991), op. cit.*
- 5 *See also Massey D. (1984), Spatial division of labour. Social structures and the geography of production. Macmillan.*
- 6 *Keeble D. and Wever E. (1986), New firms and regional development in Europe. Croom Helm.*
- 7 *Ernst and Young (1991), The regions of Europe, a comparative review of their attractiveness to corporate investors.*

Section B : Infrastructure and spatial coherence

Transport

A number of factors are combining to produce unprecedented demand for transport: the completion of the single market, the growth of the service economy, new relationships between the Community and the countries of EFTA and Central and Eastern Europe. The Community's transport system is increasingly unable to cope. In the highly-developed conurbations of the North, traffic congestion is endemic. Measures to ease traffic flow may work in the short-term but longer-term solutions must include the development of an integrated transport network on a Community-wide basis. At present, links to the southern periphery and Ireland are insufficient. Trans-European networks provide the framework for the future development of high-speed links. Connections between different forms of transport — including development of ports — are necessary to link the periphery to the high-speed network. Investment in new connections within regions are also needed to ensure that benefits from transport improvements are widely diffused and not concentrated in the economic centres along the new high-speed corridors.

The efficiency of the transport system is a key factor in the process of European integration. It represents a major part of the effort to modernize and improve the infrastructure in peripheral regions of the Community, to reduce increasing congestion in the central regions and to improve the connections be-

tween the centre and the periphery.

Traffic: past trends

The demand for transport has shown steady expansion over time¹. The data (Graph 7) suggest that over recent years

the volume of transport has been growing by nearly 5% a year, faster than the economy as a whole (3.1% a year). A number of factors have contributed to this relative growth:

- the increasing mobility of goods and people resulting from the closer

integration of the Community and the impending completion of the Single European market;

- the changes in the economic structure of the Community and in particular the increase in service activities such as tourism;
- the tendency towards reducing stock-holding in favour of "just in time" production methods.

Freight

Freight traffic in the Community currently amounts to about 1,000 billion tons per km. 30% of this is trade between Member States. In 1987, 40% of freight traffic went by road, 25% by river or canal, 12-15% by rail and the rest by sea and (gas and oil) pipeline. 73% of goods traffic by water was between countries as opposed to 25% for rail and only 12% for road. A third of all inter-country freight transport was by sea, double the figure for rail.

Most traffic occurs in and around the Community's core area, in the UK, Ger-

many, France and the Benelux countries where the pattern is more international than internal (Map 12). By contrast, Denmark, Ireland, Portugal and Greece account for only 3-5% of total inter-country freight. Half of European sea transport consists of freight movements between the UK and the Continent.

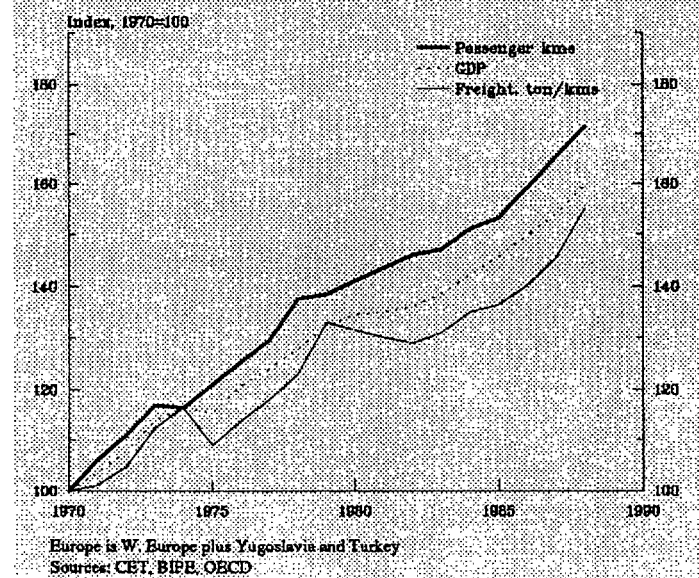
In Western Europe as a whole, the freight of goods increased by 50% between 1970 and 1988, an average rate of growth of just over 2% a year. Whereas sea and rail traffic showed little or no increase, the flow of gas and

oil by pipeline grew substantially and road traffic nearly doubled, expanding by 3¹/₂% a year. For all forms of transport, inter-country traffic grew by more than the total.

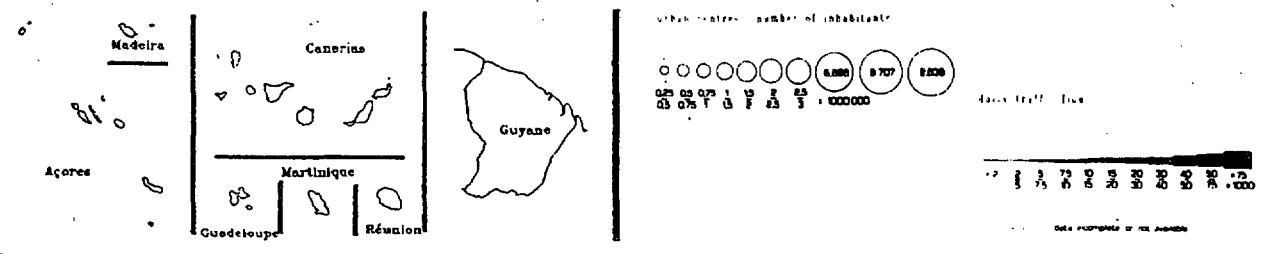
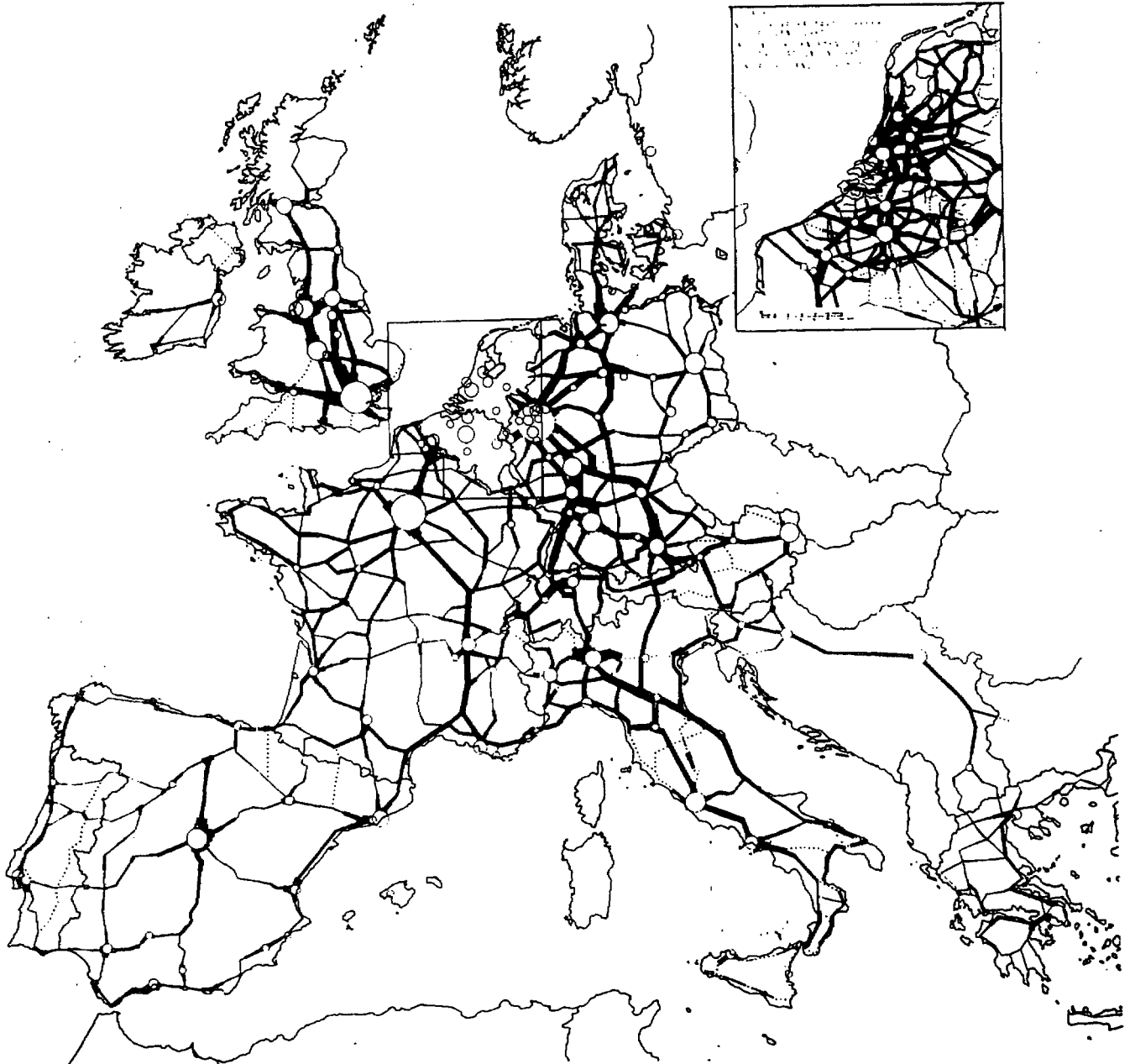
Passengers

The transportation of people is heavily dependent on the use of roads. Of an estimated 100 million journeys annually across the borders of Member States of the Community plus Switzerland and Austria, 45% are by private car, 10% by bus, 30% by air and 8% by train.

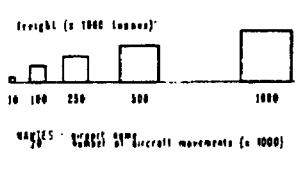
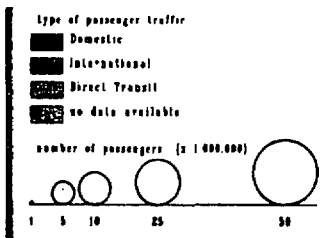
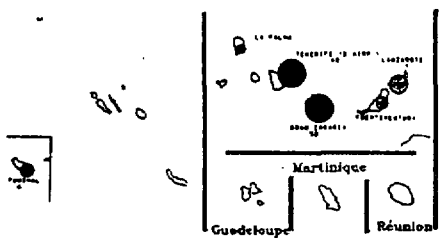
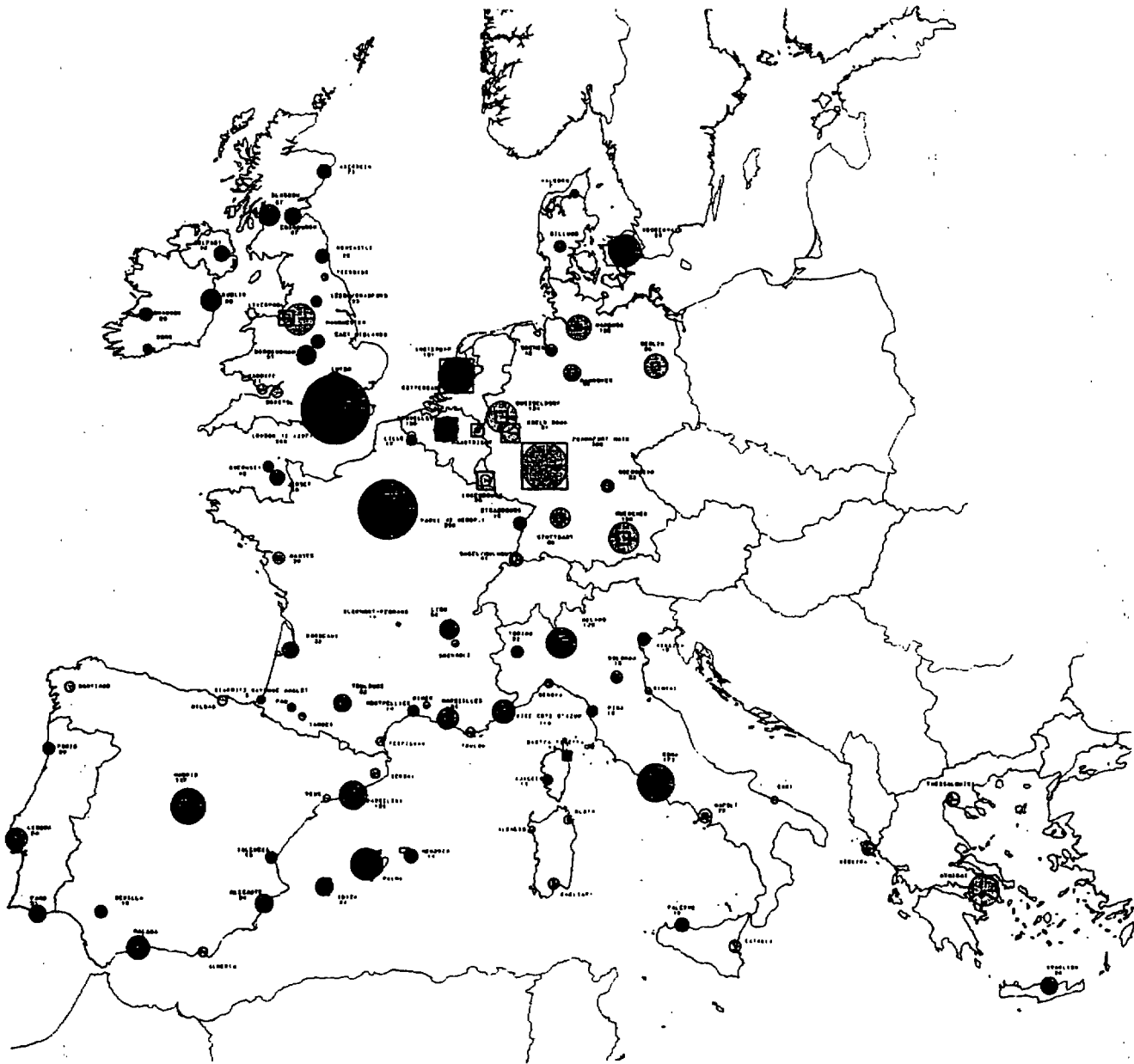
7 Traffic growth in Europe, 1970-88



Motor Traffic on Main International Arteries (1985)



Principal Airports, Aircraft Movements, Passengers and Freight Handled (1989)



70% of journeys are for pleasure, 14% for business and the rest for other reasons like visiting relatives or going to school. The principal flows — some 45% — take place between France and Italy, France and Belgium, France and Germany and Germany and Italy. These flows tend to be for the most part along North-South axes.

The evidence suggests that passenger transport has grown at a slightly higher rate than freight. Moreover growth has been more stable and less affected by fluctuations in economic activity. Over the long-term, it has been sustained by increases in travel for leisure and commuting, with the use of private cars increasing relative to that of buses and trains.

Geographical implications

Congestion in the Core

Over the next decade the demand for transport is expected to continue to grow. In relation to freight, it is

expected that traffic will grow by 5% a year during the 1990s. As regards passenger transport, estimates suggest a continuation of growth in northern and central Europe of 2% per year and 3–4% per year in southern Europe. For air passenger flights, growth of 5–7% per year is expected over the present decade (Map 13).

A combination of increasing volumes of transport and inadequate investment in new infrastructure has resulted in a worsening of congestion around the Community's densely populated economic core areas. Pressure is particularly intense around major industrial areas, urban conurbations and in the transport corridors which link these centres. Places such as the Rhine-Ruhr area, Greater London, the Randstad, Ile de France, Munich, Milan or Madrid have established reputations for severe congestion. While there are clear indications that the capacity of the European transport system is approaching saturation within the core areas, it is increasingly difficult to build new airports, motorways and railway lines to meet the growth in demand. This is

due to financial constraints combined with environmental and land use considerations. Between 1975 and 1984 when the volume of traffic expanded by 25%, investment declined by 22%². An urban motorway, for example, costs on average 10 to 30 times more to construct than one in a rural area. Without remedial action the major economic centres will become increasingly inaccessible.

Possible measures to improve traffic flow

Given the inadequacy of transport infrastructure in the congested areas in the face of the growth in traffic, and given the mounting popular opposition to new projects in these areas, the search for alternative solutions will intensify over the next decade³. A number of measures are being considered.

Alternative routes can be developed to relieve existing road or rail links. These can be implemented at the European level by promoting investment which both fulfils this function and assists less developed areas. The building of more passes through

the Alps, crossing the Massif Central in France as an alternative to going through the Rhone valley, routes on both sides of the Rhine valley, are all examples of projects which would serve to improve the transport network in the Community.

Improving the flow of traffic is as yet an insufficiently explored option. This type of solution can take many different forms, ranging from regulating traffic flows to the development of an integrated transport system.

Technical ideas abound for moving goods or people en masse at increased speed. Possible measures include the application of advances in traffic management such as Drive/RDS road technology, a unified Air Traffic Control system or a European control-command system for the high-speed rail network. The French TGV has a theoretical capacity of 15,000 passenger hours in each direction, or double that of a three-lane motorway. The "rolling road" allows several times the weight of goods to be carried by rail than by motorway. This, however, assumes that a special line is constructed and therefore

that traffic is concentrated on it. This type of system can help control the use of private cars and is likely to be of interest to the northern regions, in particular, which are crossed by heavy loads since it produces less pollution and has potential economic benefits.

It may also be possible to manage transport use, particularly the use of private cars, with a view to evening out peaks in demand and pressure on capacity.

Charging for the use of roads has been largely a matter of the motorway tolls applied by certain Member States. In urban areas charging takes the form of parking fees which are set at higher levels, usually with short time limits, in heavily congested places. Increasingly, however, city and regional authorities are considering the introduction of charges for the use of urban roads. Levying tolls which vary according to time (higher during rush hours) or location (higher in urban areas where routes are more expensive to construct) are potential options, so long as users accept the principle involved. Indirectly,

it comes back to charging part of the costs of congestion to those who benefit most from the services which cost the community the most. The recent experiment in Randstad is not, however, encouraging and such measures tend to be politically unpopular. While new taxes and charges are potentially useful counter measures to congestion, the evidence seems to suggest that unless they are set at draconian levels results are likely to be marginal.

The above measures are essentially concerned with tackling traffic congestion in core areas of the Community. Attention has also turned to other measures which would affect, directly or indirectly, the balance of traffic flows throughout the Community. These include measures such as the adjustment of tariffs and/or the taxation of means of transport, the (related) inclusion of externalities in transport pricing and the contribution of transport infrastructure to creating a more balanced spread of economic activity across the Community. These measures relate to the situation of the periphery as discussed below.

Peripherality

Despite the increasing congestion in central areas, there has until now been a relative neglect of investment in peripheral regions. A number of factors have militated against investment in the periphery:

- first, in central areas, where congestion reflects the existence of unsatisfied demand, the return on investment in transport infrastructure can be readily identified and quantified. Investment in peripheral areas tends to precede rather than follow economic development, so that although the benefits are real they are largely long term. However, over the next decade this balance could begin to shift as the competition for space in central areas intensifies and as the less quantifiable, external costs of transport investment in congested areas, especially from pollution, reach intolerable levels;
- secondly, particular problems arise in improving access to peripheral regions since this

often depends on the transport systems in other countries and on the willingness of their governments to invest in transit routes;

- thirdly, problems of peripherality are often exacerbated by the existence of natural barriers, such as the sea and mountain ranges (the Pyrenees and the Alps), or through the need for transport routes through non-Community Member States. The existence of these factors increases the costs of linking the periphery to the rest of the Community, to the disadvantage of Ireland and Greece, in particular. The links to the periphery at present are also characterized by lack of standardization, 'missing links', bottlenecks and inadequate levels of modernization in the transport networks.

Integrating the periphery: Community actions

The creation of a more balanced transport network is a particular priority of the

Community. The bulk of Community assistance in this field is undertaken through the Structural Funds in recognition of the important contribution of basic infrastructure — including transport — to promoting the economic development of the weaker regions.

In relation to investment in roads, Community support amounts to around 3¹/₂ billion ECU over the five-year period 1989–93. This expenditure is heavily concentrated in Spain, Portugal, Ireland and, to a lesser extent, Greece. These expenditures include those incurred in improving regional road networks as well as those contributing to the improvement of links with the centre.

Rail infrastructure attracts some 1,000 million ECU of Community assistance over the five-year period, of which over 600 million ECU is intended for investment in the TGV network in Spain with the rest being spent in Greece, Portugal and Northern Ireland.

Just over 500 million ECU is intended for investment in ports and airports between 1989–93, split evenly be-

tween them. Investment in airports is being supported especially in the island regions, notably Madeira and the French DOM, whereas in Northern Ireland and the Azores improved port infrastructure is the priority.

Outside the Structural Funds the Community has established a (non-regionalized) facility to intervene financially in support of the completion of transport infrastructure projects. In 1990, the Transport Council of Ministers took a major step forward to ensure the completion of Community priorities in the field of infrastructure by adopting a 3-year financial programme. The financial intervention of the Community, though limited in terms of budgetary appropriations (328 million ECU), should nevertheless make an important contribution to ensuring that Community priorities are not endangered by national budget constraints.

Of particular importance is the fact that in creating a more balanced transport network the Community is moving towards a collective approach. A consultation procedure and a Committee for Transport Infrastructure

have been established to facilitate coordination including exchanges of reciprocal information between Member States. Several intergovernmental expert-groups assist the Commission in the configuration of the different inter-regional networks of the Community for the year 2010, notably the future high-speed rail and combined transport networks and also the future motorway and inland waterway networks. In this context, studies are currently underway to examine the socio-economic, environmental and regional impacts of the different networks. The major objective is that of preparing outline Community plans for the different networks and in this way ensuring joint programming at the Community level.

High-speed transport and regional development

A recent Commission study⁴ underlined the importance of business travel as a major determinant of accessibility with the greatest potential

for creating the conditions for regional economic development.

The development of producer services and the expansion of commercial operations relative to the production of goods means that the ease of moving staff from place to place and the time spent in travelling are of increasing importance to companies. This has led to a growing demand for regions or cities to provide rapid and reliable transport systems, and to favour the development of high-speed networks (motorways, TGV and air). Moreover, while the growth of information technology and improvements in telecommunications can substitute for certain types of journey, the two tend to be complementary.

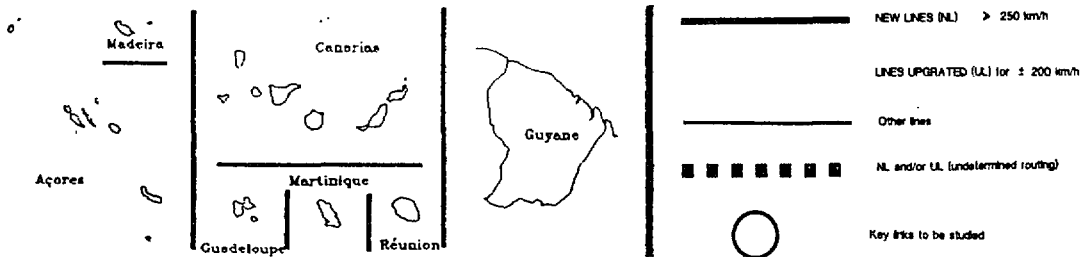
The failure to complete high-speed networks throughout the Community can only have adverse effects on intra-regional disparities in terms of economic competitiveness:

- 20% of the long distance international road network is not yet of motorway standards. In the Iberian peninsula, Ireland, the northern part of

Outline Plan of European High Speed Train Network , 2010



Source : CEC DGVII



the UK and Greece continuous, high quality routes over long distances do not exist;

- the same is true of the Community rail network where 20% of the inter-regional passenger network is run at speeds of less than 70 km an hour and where only 5% of inter-regional rail travel is at an average journey speed of over 120 km per hour. Work is already underway to complete the TGV-North railway lines, serving the most populated conurbations of the Community but more effort is needed to spread the network far beyond these areas (Map 14).

Great care is needed, however, to prevent the development of high-speed transport from strengthening existing links between the main economic centres, to the detriment of the development prospects of other, especially peripheral, regions. The effectiveness of a transport system is not only dependent on the construction of a modern high-speed infrastructure but also on the provision of capillary connections spreading the benefits geographically with-

in the regions. This in turn tends to depend on improved integration between all forms of transport. This is especially true for passenger transport where the provision of connections both between high-speed networks and between these and traditional transport networks seems the best way of spreading the benefits.

An important aspect is to ensure good connections with urban transport systems, especially in the case of airports and TGV stations which can be some distance from cities. The lack of an efficient connection is a major cause of loss of time, which reflects badly on the cities concerned and on the overall efficiency of the transport system. Where new activities have been attracted to the periphery by high-speed links there is the risk that poor connections will encourage the concentration of business activity around airports or TGV stations, reducing the extent to which the construction of new transport facilities benefits the wider economy of the regions.

In summary, the development of high-speed means of transport, in complementary combinations, is capable of nar-

rowing current disparities between the centre and periphery. Essentially this will concern the linking up of the rail/road network, the main inland waterways and the main ports. The peripheral regions of the Community need to be connected to the main integrated transport network, including the development of maritime connections between peripheral regions themselves. Greater attention might also be given to the potential for strengthening inter-regional air transport in the Community. The scope for combining it with other means of transport makes it a particularly useful way of improving regional accessibility.

The regional effect of the Channel Tunnel — case study

The construction of the Channel Tunnel can be seen as a test case illustrating the potential regional effects resulting from

major investment in new transport links. The creation of a new fixed link between Calais and Folkestone represents a fundamental change, the possible impact of which, both on the transport system in general and on regional development in particular, needs to be considered in a broader European context.

The diversion of traffic

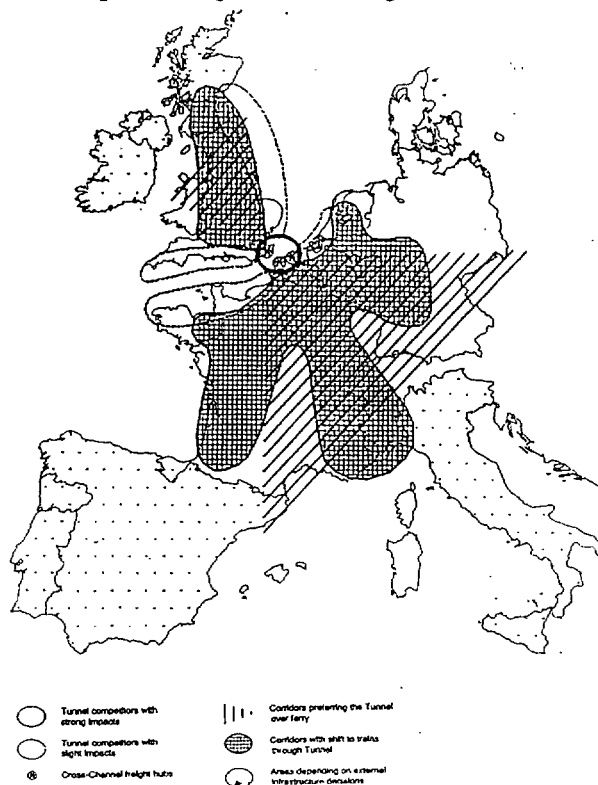
According to a new Commission study⁵ aimed at assessing its implications both for transport and for the location of economic activity, the Tunnel will both attract traffic away from other means of crossing the Channel and increase the overall growth of traffic. On the estimates made for the study, the Tunnel will attract between 30 and 40% of freight transport depending on the construction of rail and road links on the British and continental sides. The rail share of surface passenger traffic could reach 40%. Up to 10% of projected cross-channel air passengers will shift from plane to train if high-speed rail access to the

Tunnel is completed, but only 6% if not.

Over time, however, the negative effects of the Tunnel on alternative services should be progressively offset by the expected growth in cross-channel tourist and business travel and freight. Passenger traffic (including air) is projected to increase from 84 million to 107 million journeys, or 27%, between 1991 and 1996 and by a further 26% to 135 million by 2001. The number of lorry crossings of the Channel is anticipated to grow

from 3.3 million to 4.4 million, or 35%, between 1991 and 1996 and by a further 18% to 5.2 million by 2001.

The effects of the Tunnel, however, are likely to vary significantly as between the different forms of passenger transport. The Tunnel should be a particularly attractive option for those who would otherwise use the short ferry crossings. This is particularly true for those travelling by coach, who tend to be virtually all tourists whose journey usually takes them through London or Paris.



Draft map

Greece should be in this category

Those travelling by car, who tend to be coming from and going to more geographically dispersed places, are likely to go on using ferry crossings along the Western Channel and North Sea coasts.

The tunnel is also expected to increase the importance of rail traffic, depending on the completion of the high-speed rail network, which will significantly reduce cross-Channel travel times (often by half according to the study), with particular savings being produced along the main railway routes in France, Belgium, the Netherlands and Germany (Map 15). At the same time, certain regions close to the Tunnel (eg Normandy and Zeeland) could become relatively less accessible because they are less well integrated into this high-speed rail network. In general, gains to rail are likely to be at the expense of air transport. Rail is expected to attract 2 million passengers a year from air and could carry 5 million passengers in total when fast train connections on both sides of the Tunnel are in place.

In the case of freight transport, the Tunnel is expected to attract accompanied Roll-

on, Roll-off (RoRo) vehicles in particular. Channel ports could lose an average of between 30 and 35% of traffic with those in Kent, Nord-Pas-de Calais, West-Vlaanderen and Zeeland losing up to 70%. Unaccompanied RoRo freight, an important component of the total in West-Vlaanderen, should be less affected by the Tunnel. The share of freight going by rail — which is particularly attractive for regions distant from the Tunnel (in Scotland and Piemonte, for example) — is expected to rise by 10%, at the expense of road.

The regional impact of the new link

The Channel Tunnel, largely a private sector venture, was essentially conceived as a transport project to improve links between the UK and France, generating returns both from an increase in traffic and from a diversion of traffic from sea and air. Less attention was paid to regional development issues, especially at the Community level. The Commission study attempts to examine and

quantify the effects on the Community as a whole from an analysis of 13 selected regional economies.

According to the study the regional effects vary considerably depending on the number of factors, including the extent of new investment in infrastructure. Ireland provides a good example of potential gains and losses. The Irish manufacturing sector imports relatively large amounts of manufactures and exports a high proportion of its output. Improved access to suppliers and markets in continental Europe will benefit Ireland more than less open economies. On the negative side, with the full realization of the plans for extending the rail and motorway network in Europe, Ireland is likely to become relatively more peripheral, to the detriment of services, including tourism, which could more than offset the gains to manufacturing.

Overall, the study concludes that the regional economies benefiting most from the Channel Tunnel are concentrated in the London-Brussels-Paris triangle. Within this triangle, however, the Tunnel, together with the

new high-speed network, may create certain economic grey zones in Normandy and Zeeland. The gains will tend to be concentrated in regions around the exits on either side of the Channel (especially after new access points at Ashford in Kent and Hainaut in Belgium have been constructed) and in regions on each side of the main axis some distance from the Tunnel. The development of the high-speed rail network is particularly important for the realization of these benefits. The extension of this network is also expected to lead to a diffusion of benefits from the Tunnel across much of France and should have a significant positive effect on virtually all industries in Belgium, western Germany around Cologne (a nodal point of the new high-speed network), central and southern Germany and Piemonte in Italy. Regions adversely affected by the Tunnel are

likely to include most of those in the southern Member States as well as in Denmark, eastern Germany, Ireland, Northern Ireland and northern Scotland.

The study suggests that the adverse effects of the Tunnel could be mitigated by a variety of actions, including strengthening transport links between peripheral regions in the South and North and the centre by, for example, modernising ports and connections to the high-speed network.

For the Channel ports close to the Tunnel, especially Dover and Calais but including others such as Boulogne and Ostende, adaptation to the new competition will be difficult in the short-term. Shipping companies and authorities in these and other ports close to the Tunnel expect, however, that in the longer term, there will be a secure future for chan-

nel ferries after the initial period of passenger losses. Modernization would help to ensure that these ports share in the expected overall growth in traffic although the loss of development potential calls for complementary measures to encourage regional diversification.

For the 'grey' zones along the coast away from the Tunnel, and for regions along the main axes which are not fully integrated into the network, the development of new transport connections of road as well as rail would help to alleviate difficulties.

The study also indicates that even in the regions favoured by the Tunnel there are risks of the gains being concentrated in specific areas. Efforts to promote the intra-regional diffusion of benefits may therefore also be necessary.

Community actions : missing links in Community transport networks

Most of the projects listed below are well advanced in the preparatory process at the Commission and some of them, especially in the field of inland transport, already form the subject of decisions by the appropriate Community bodies. Their common aim is to identify and overcome inadequacies in existing trans-European networks.

There are as yet no projects relating to ports or airports, since the Council has not decided on the Commission proposal seeking to extend the competence of the Community to these areas. However, discussions with the Member States show that the majority of them wish to develop a more global and multi-modal approach.

Road network

- (i) The development of an integrated trunk road network is a particular priority to ease congestion and improve connections to the periphery. A strategy, including concrete action proposals, will be submitted by the Commission to the Council in the near future.
- (ii) Certain projects have already been identified as assisting the interconnection of existing networks; this is the case for the following projects which will receive Community financial support:
 - road links across the Pyrenees, specifically:
 - Toulouse-Madrid and Bordeaux-Valencia: construction of a tunnel under the Somport (commissioning in 1995)
 - Toulouse-Barcelona via the Puymorens tunnel (commissioning in 1994)
 - a road link to Ireland connecting Crewe and Holyhead in the United Kingdom
 - road links in Greece connecting Patras, Athens, Evzoni and Yugoslavia.
- (iii) A certain number of projects are considered as essential for the development of the road network, principally:
 - new Channel Tunnel access routes
 - new trans-alpine crossings between Italy and France

- the Lisbon-Madrid motorway
- the modernization of the network in the former GDR
- new connections with countries bordering the Community (links with Scandinavia and Central and Eastern Europe).

High speed train network

Attention here is concentrated on the completion of a modern rail network for passengers.

Two major axes have been considered as priorities for Community financial intervention:

- in the North: Paris-London-Brussels-Amsterdam-Cologne, with connections to other Member States
- in the South: Seville-Madrid-Barcelona-Lyon-Turin-Milan-Venice, and then to Tarvisio and Trieste, and Oporto-Lisbon-Madrid.

In addition, as regards the completion of a European network, studies are underway on some 14 key links which are considered to be a particular responsibility for the Community (see map).

Combined transport network

(i) Some projects already receive Community financial support, notably:

- the Bremer axis through Austria and northern Italy
- enlargement of gauges on the axes:
 - United Kingdom-Benelux-Italy
 - Germany-Spain-Portugal

(ii) a combined transport outline plan is being prepared for the completion of a network of railway lines and terminals, and for the integration of the road, rail, inland waterways and sea transport systems.

Inland waterways

The existing networks are being developed primarily through new inter-connections, particularly in France (eg a study on the Seine-Nord link is being completed) and in Germany (Mittelland kanal).

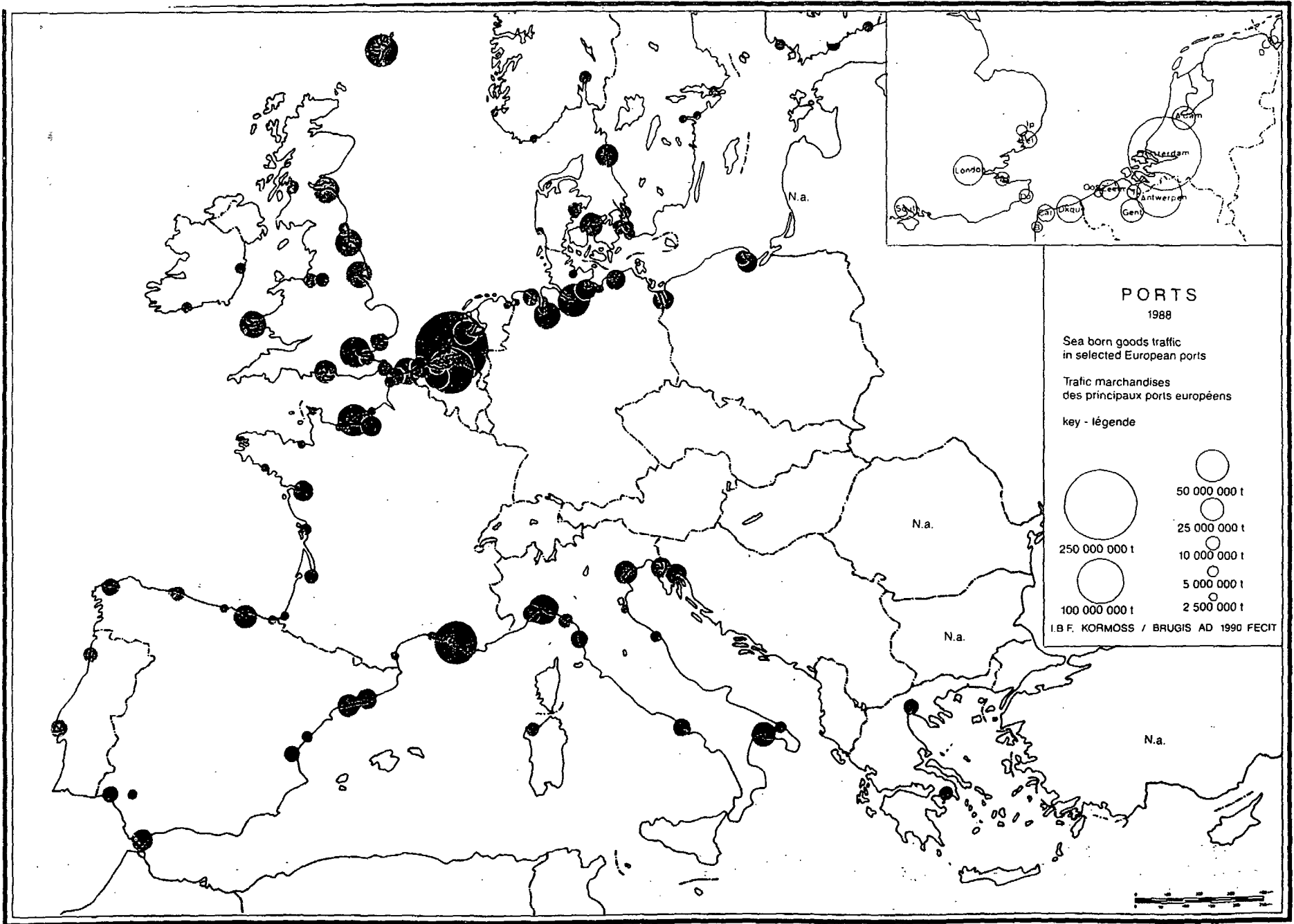
Sea transport

Community level actions in this field have not yet been agreed. The Commission sees a number of possibilities:

- (i) the development of port facilities along the Atlantic and Mediterranean coastlines could be studied from the perspective of the development of certain economies
- (ii) short sea shipping would be further developed as an alternative to inland transport
- (iii) maritime links could be improved in the case of peripheral countries notably Ireland and Greece (Map 16).

Air transport

The Commission considers that the solution to air traffic congestion will come about through unifying current control systems. The measures taken by the ECAC in April 1990 and the creation, under the aegis of EUROCONTROL, of a single management centre for air traffic control, are insufficient. Although the Commission will contribute to the implementation of these measures, they are only a first step, since they are limited to ensuring the compatibility of existing national systems. It intends to promote further studies to influence decisions of a complementary nature which should be taken before 1994. These include, in particular, studies on a unified system of air traffic control and participation in the EUROCONTROL programme and ATLAS study (aimed at defining a solution to the problem of establishing an integrated system using advanced telecommunications techniques — 1990-1992).



Footnotes

- 1 *Except where otherwise stated, the following statistics are taken from Atkins Planning Consultants (1990), Future evolution of the transport sector. Study financed by the European Commission.*
- 2 *Group Transport 2000 (1991), Transport in a fast changing Europe. Study financed by the European Commission.*
- 3 *Working Group on Transport and the Environment (1990), Transport and the Environment: an integrated and long-term approach for the Community. Study financed by the European Commission.*
- 4 *Tecnecon (1991), Future evolution of the transport sector: main implications for regional and future transport planning. Study financed by the European Commission.*
- 5 *ACT Consultants (1991), The regional impact of the Channel Tunnel throughout the Community. Study financed by the European Commission.*

Information Technology and Telecommunications

New developments in information technology and telecommunications (ITT) have the potential to reduce the relevance of distance, narrow the cost disadvantage of being located in remote areas and therefore improve the geographical integration of the Community. However, in practice there are considerable regional disparities in access to modern telecommunications networks. In peripheral regions and in rural areas, the absence of a large market reduces the short-term viability of investment in new infrastructure calling for increased public, including Community, support in its initial phases.

ITT cannot be used as a substitute for travel in all cases. Face-to-face contact remains important in the development of new markets and in relationships with suppliers, so giving rise to a growing demand for high-speed passenger transport. Moreover producers remote from their markets and sources of supply still require efficient means of freight transport. ITT and transport networks therefore must be conceived in complementary terms.

The importance of information to the efficient operation of market economies has long been recognized. Unequal access to information gives certain firms a competitive advantage over others. Where access to information is related to distance, this will tend to give

rise to differences in competitiveness between regions.

Distance, however, can increasingly be overcome by modern communications technologies. Where regional differences persist in this respect, they reflect differences in access to, and

the efficiency of, communications systems and information technology.

The past decade has witnessed enormous growth and development in the field of information technology and telecommunications (ITT), including in particu-

lar the use of computer systems. International telecommunications traffic on public networks alone increased by over 500% during the 1980s and global traffic is expected to continue expanding at a minimum of 15-20% annually up to the year 2000 and beyond¹. ITT will continue to develop in the years ahead and balanced regional growth in the Community will require more equal access to new developments as they occur.

ITT and the economy: the possibilities

In modern economies, ITT has the potential to modify trade flows, accelerate the rate of adoption of new technology and generally to change the pattern and reduce the level of production costs.

At the individual firm level, ITT affects the nature and variety of what is produced, the processes which are used and even the structure of the organization and how it is managed. The applica-

tion of ITT offers opportunities for improving the organization of production, distribution and marketing both within and between firms and for increasing the speed and flexibility with which suppliers are able to respond to changing demands. ITT reduces the time it takes for information about actual and prospective sales to be relayed from customers to producers, so enabling production to be more closely tailored to demand and the level and cost of unwanted stocks to be reduced.

In a highly competitive world in which marketing has become increasingly important, effective communication of information is essential to enable organizations to operate in an efficient and integrated way. With rapidly changing demands and the increasing desire for variety, the ability to process and transmit information rapidly is becoming critical for creating added value and establishing a competitive advantage.

ITT is a key factor in allowing organizations (including public administration) to expand and overcome the problems of managing and

controlling large-scale and often widely dispersed operations. It is likely to become increasingly important in the coming years in enabling effective coordination of activities and in reducing the importance of where departments or individuals are physically located. For example, even today people in many types of job can work just as effectively from home or another office provided their micro-computer is linked to their main office.

ITT and regional disparities

The future development of ITT is likely to have a differential effect on the regions across the Community altering the comparative advantage of some regions in relation to others, affecting investment location decisions and giving certain areas new opportunities which did not exist before because of high transport costs. A key question is whether, through these developments, ITT will in-

crease or decrease regional disparities. In other words, will ITT be the vehicle allowing activities to move out of central regions towards the periphery or will the movement be in the opposite direction?

In the large firm sector, ITT may perpetuate the concentration of decision-making in central areas while facilitating decentralization of lower level activities to the periphery. Peripheral regions, therefore, stand to gain from potential relocation of these activities, but to lose out from the transfer of control. Moreover, consumer services at present supplied locally in the least favoured regions could be displaced by services produced and delivered via modern telecommunication links.

In the small firm sector, ITT innovations, in the form for example of extended use of micro-processors, are the key to reducing the cost disadvantage of small relative to large-scale operations and eliminating the need for both large initial investment and high overhead costs. By facilitating the information flows which are fundamental to the efficient operation

of flexible production systems, they also enable small and medium-sized firms to locate away from established high-cost centres without suffering a significant competitive disadvantage.

Meanwhile, new developments in mobile communications will facilitate communication between isolated rural areas or islands to central areas and markets. In Europe, there will be a projected 8 million mobile cellular telephones likely to be in service by the year 2000 (compared with 2 million today)².

ITT developments will, in addition, have implications for other aspects of production such as transport and the use of skilled labour which in turn will affect regional competitiveness. In the transport sector, ITT developments will have a two-fold effect. On the one hand, advances in telecommunications enable services to be provided without the need for travel (teleshopping, video conferencing, telebanking and so on) or locational proximity (teleworking, administrative procedures, social security payments and so on). On the

other hand, the relocation and dispersion of production facilitated by ITT are likely to require better transport systems to convey materials, components and finished products, to accommodate increases in business travel and to allow personal contacts to be created and maintained. ITT and modern systems of transport, therefore, need to be seen as complementary, rather than competing, requirements of regional development.

The combined use of information, communication and broadcasting technologies will contribute to the development of integrated trans-European services to improve the performance, safety and efficiency of passenger travel and the transportation of goods while helping to reduce the damaging effect of transport on the environment.

The overall expectation from ITT in transport can be seen from the current research going on in Europe. A number of projects supported by the European Commission are already working in this direction. These programmes are contributing to the reduction of congestion, to the use of

New developments in ITT: Videotex

Videotex is a two-way information transfer system on-screen which offers popular services to the domestic user (ie telephone enquiries, home-shopping ordering, entertainment, travel arrangements, etc) as well as to the business world in the form of inventory management, order entry, sales support, promotion, corporate electronic mail and remote maintenance (Michaelides S. (1991) France and worldwide videotex interconnections. Presentation to TELEMATIQUE conference, Belfast).

Most of the world activity in videotex is currently taking place in Western Europe, where there are more than 6 million regular users, particularly in France, which has the highest usage in the world. The main obstacle to its further development over the next decade is the lack of compatibility of, and difficulties of interconnecting, existing videotex systems. Providing these problems can be overcome, given that videotex potentially offers a reasonably simple, economic and reliable solution to increased communication needs, its use is likely to spread throughout the Community by the year 2000. Community videotex markets such as Italy and Holland are already showing signs of rapid growth, and in other countries, such as Ireland and Spain, substantial efforts are being made in order to promote this type of service.

more efficient power units for vehicles and the reduction of pollutants in the atmosphere. New automated systems reduce the land taken up by motorway toll-booths while communications developments are making possible a Europe-wide information system on traffic movements.

ITT also has the potential to improve the skills and qualifications of the Community's workforce by providing coherent, Community-wide solutions to education and training. At the extreme, this could take the form of electronic universities offering networked learning and continuous training, opening up greater freedom of choice and mobility. Individuals would be able to access electronic libraries, follow 'on-line' courses at a wide range of international universities independently of where they live, obtain training courses through 'intelligent' interactive software packages, and so on. The new opportunities offered in this area could have significant social implications by facilitating access to education for everyone, regardless of means or background.

ITT could, in addition, have an impact in the health sector. The existence of health-care databases and expert systems with fast and easy access could contribute significantly to improving levels of healthcare and deliver the best medical service to patients even in remote areas.

As regards business access to new technology, the so-called 'networks of excellence', which will link European research and innovation centres, could have a profound and long lasting influence on the European research community and its role in industrial innovation and training. These networks enable research and innovation to be spread throughout the Community. They facilitate access to the know-how needed to develop new products and processes and help in their marketing through promoting trans-European partnerships. The feasibility of establishing decentralized innovation centres in all parts of Europe means that local centres can be created in small rural towns as well as in large cities.

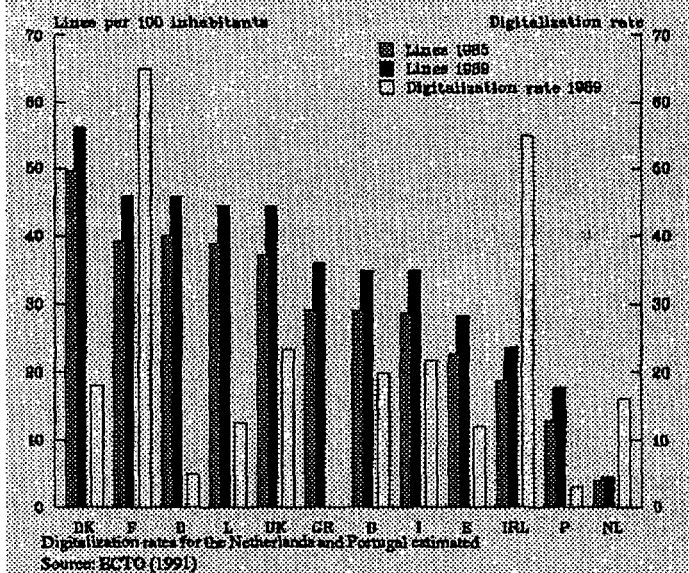
It is clear that in order for less favoured regions to take advantage of the oppor-

tunities offered by ITT, efficient telecommunications networks must be widely available. Recent evidence³, however, indicates that the initial installation of new universal networks (ISDN — Integrated Services Digital Network), which for the first time will make it feasible to transmit voice and data on the same medium and will greatly increase the speed of data transmission — will tend to follow established patterns. They will therefore be concentrated in the most developed and highly populated areas, so preventing many small and medium-sized companies in

more remote regions, which do not have access to private networks or are deterred from using them by the cost, from being able to take advantage of them.

Past experience also indicates that ITT-related services tend to be introduced in the largest cities and business centres first and only later become available in smaller cities and towns. Moreover, the transition to a more liberal regulatory environment and to marginal cost pricing could well disadvantage individuals and businesses in less favoured regions, especially those in

8 Distribution of subscriber lines, 1985 and 1989 and digitalization rate, 1989



rural and remote areas, where the real costs of supply are much greater than in central urban areas.

Recent studies show that peripheral regions in the South of Europe, in particular, suffer from the poor quality of even very basic telecommunication services. The average number of lines per 100 people in 1989 was 25 in the less developed regions (those classified as Objective 1 for Structural Funds purposes) as against, for example, 46 per 100 in France (Graph 8)⁴. In general, telecommunications in the less developed regions are about 10 years behind the rest of the Community. To bring them up to the same standard as elsewhere would require expenditure estimated at around 50 billion ECU⁵. These regions also tend to lack advanced telecommunication services and could therefore miss out on the new opportunities offered by ITT developments.

Providing efficient telephone lines and the related

services is not, however, sufficient. The less developed regions also need to have businesses and individuals with the know-how to respond to the opportunities created by advanced telecommunications, in the form of on-line information services, rapid data transmission and so on. Recent studies indicate that the effective use of ITT in less favoured regions is inhibited by the lack of understanding in many of the firms located there of the possibilities which are opening up in this area⁶. If disparities between the central and peripheral regions in the use of advanced telecommunications are not to widen further, education in ITT needs to be encouraged and the demand for ITT services stimulated by effective demonstrations and other means.

In the longer term, the creation of a telecommunications system which meets certain standards of service and availability could help secure more balanced regional development in the

Community. This could be accompanied by increased teleworking and the relocation of certain information-intensive activities.

The Community has recognized the strategic role of telecommunication services in the development of the Community economy and expenditures in this area are among the priorities in the programmes of assistance to regions eligible for assistance from the Structural Funds (see Box, Section B: Infrastructure and the Structural Funds). Further measures to promote the development of telecommunications in the weaker regions, albeit on a limited scale, include STAR (Special Telecommunication Actions for Regions), which is mainly concerned with investment in infrastructure, **TELEMATIQUE**, aimed at strengthening the implementation of telematic services in less favoured regions, and **PRISMA**, which provides assistance for the use of advanced ITT services by SMEs.

Footnotes

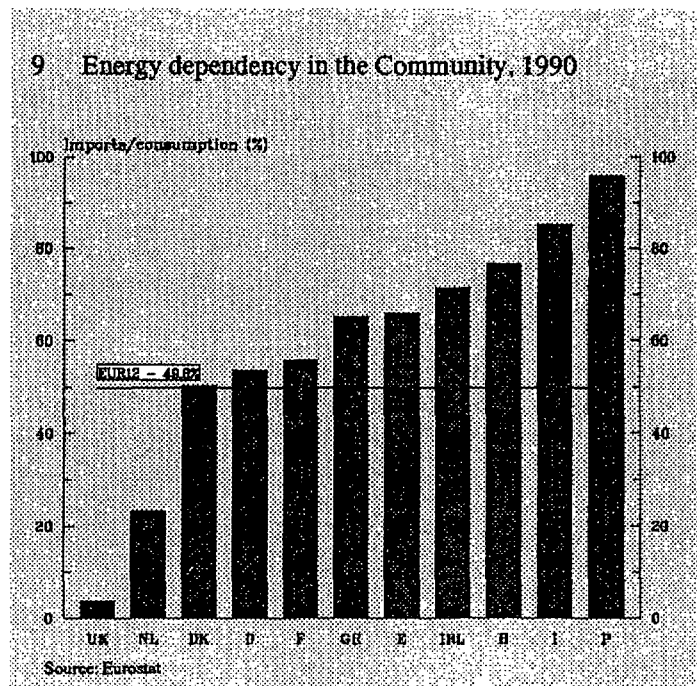
- 1 Staple G.C. (1990), *The global telecommunications traffic boom: a quantitative brief on cross-border markets and regulation*. IIC Research Report.
- 2 Diemel H. (1991), *More than mobile: how mobility would be just one benefit of the new generation of PCNs*.
- 3 Goddard J.B. et al (1985), *The impact of new information technology on urban and regional structure in Europe* in Thwaites A.T. and Oakey R.P. (eds) *The regional economic impact of technological change*. Francis Pinter.
- 4 ECTO (1991), *Regional variations in the level of telecommunications services in the European Community*. Study financed by the European Commission.
- 5 Ewbank Preece (1991), *Telecommunications investment requirements for Objective 1 regions for 1993-2000*. Study financed by the European Commission.
- 6 OECD (1990), *Report of the seminar on the regional impact of advanced telecommunications services*. Working party N° 6 on Regional Development Policies of the Industry Committee.

Energy Supply

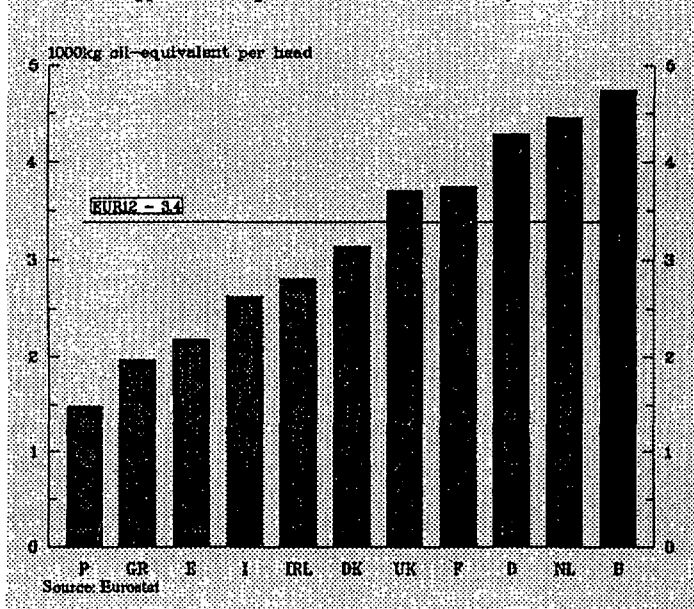
A secure supply of energy at competitive prices is a precondition for economic development. The achievement of a single market in energy calls for the strengthening and integration of transmission networks on a Community-wide basis, in addition to efforts to develop local and renewable energy sources, to ensure that all regions are adequately served at competitive prices. The integration of transmission networks will alleviate some of the pressure on energy supplies, but new electricity generating capacity will be necessary. The provision of this capacity, together with the extension of networks, must be consistent with the aim of promoting the economic development of the weaker regions while remaining sensitive to the needs of the environment.

The energy sector today faces conflicting aims requiring complex decisions to be made. Overall energy policy has to reconcile the development of energy reserves on a secure and cost-effective basis in sufficient quantities to support economic activity with an enhanced level of protection of the environment.

In this context, the impending completion of the single market is serving to highlight the present disparities in national and local circumstances and the need to give more weight to the Community aspect in order to



10 Energy consumption in the Community, 1990

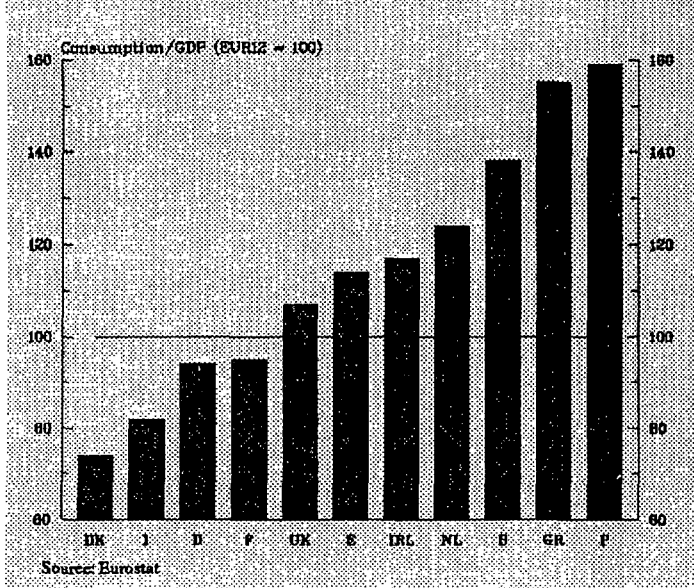


provide the flexibility required for a balanced distribution of the expected benefits of the 1992 programme.

Energy supply and demand in the Community: the trends¹

In the Community as a whole, almost half the energy used is imported (49.8% in 1990). Only the UK (4% imported) and the Netherlands (23% imported) have a lower level of dependency on imports than the Community average. In the peripheral countries, with the exception of Denmark, imports account for over 65% of energy use and in Portugal for over 95% (Graph 9).

11 Intensity of energy and consumption in the Community, 1990



There are important differences in energy use between Member States, which are mainly related to differences in income levels, industrial structures and climatic conditions. In 1990, average energy consumption per head in Spain was only 65% of the Community average (of 3,382 kg of oil

equivalent), in Greece, 58% and in Portugal, 44% (Graph 10). By contrast, energy consumption per head in Belgium was 40% above the Community average or over three times greater than in Portugal.

When differences in income levels are taken into account, however, a different pattern emerges. Apart from Luxembourg, where because of its small size special factors apply, Portugal has the highest energy use in relation to GDP (59% above the Community average), followed closely by Greece (55% above the Community average) (Graph 11). By contrast, Germany, where consumption per head is the third highest in the Community, has below average energy use relative to GDP. These differences are largely a reflection of the structure of demand (composition of GDP) and the progress made in energy saving.

Prices of electricity² vary significantly across the Community, in the case of domestic consumption, ranging from around 85% of the Community average (in Ireland and the UK) to

168% (in Denmark). For industrial consumption, the variation is less, from 72% of the Community average (in Denmark) to 121% (in Spain) (Graph 12).

It is notable that there is no systematic relationship between the relative prices charged to domestic users and industrial users in the Member States, with a number of countries charging much lower prices to the latter than the former so as to keep down costs of production in industry.

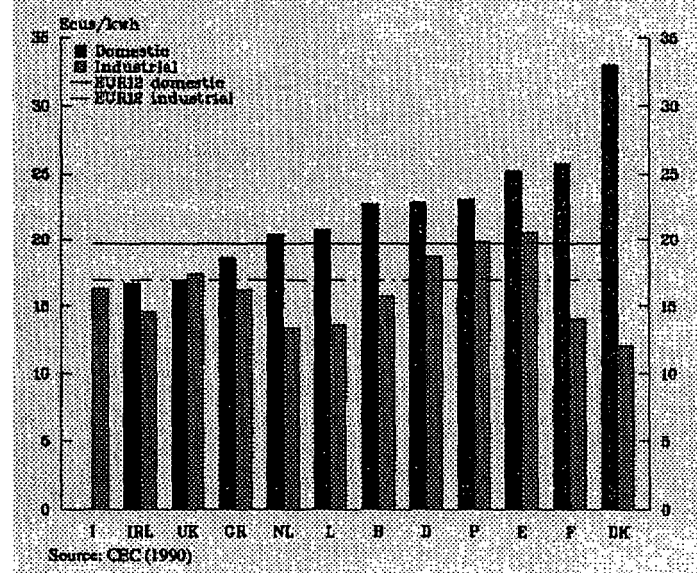
It is also notable that the price of electricity to indus-

trial users is higher in Spain and Portugal than in other more developed regions.

Prospective developments

The projection of energy use in the Community over the 1990s is for growth of just over 1% a year. This is based on an assumed rate of economic growth averaging 2.7% a year³ (slightly more than the average growth over the 1980s — 2.3% a year). Since internal energy production is forecast to fall by 4%, this

12 Electricity prices in the Community, 1990



implies an increase in dependency on external energy supplies and a large growth in the imports of primary energy, of around 25% over the 1990s as a whole. However the share of oil imports in total energy demand is expected to remain at around 35%. This implies increased use of coal and natural gas (including imports) and demonstrates the need for diversification of primary energy sources, especially in countries in the South of Europe where reliance on oil imports remains high.

This projected increase in reliance on imports is the result of a number of related factors, in particular:

- continuing growth of consumption, despite measures taken to save energy;
- limited possibilities in general for growth of Community production of fossil fuels, the difficulty of finding new sites for hydro-electricity plants and the constraints on the expansion of nuclear energy;
- the limited contribution so far of renewable energy technologies.

The prospects for the main individual sources of energy are:

- a growing substitution of imports of coal for domestic supplies, allied with technical improvements in the process used for the production of electricity;
- rapidly growing imports of natural gas which has advantages over coal in terms of flexibility and environmental protection (with almost no emission of SO₂ and less CO₂), allowing smaller, more efficient generating plants and their use in densely populated areas;
- little or no growth in nuclear energy. The situation, however, varies markedly between Member States. The nuclear share in total electricity consumption is 35% in the Community as a whole (84% in France, 64% in Belgium, 39% in Spain, 34% in Germany and 21% in the UK);
- declining production of oil in the Community against a real possibility of strong growth in demand in the short-term,

mainly due to transportation needs.

Geographical implications: the development of Community-wide networks of electricity and natural gas

In the energy sector, it is not sufficient to rely on market forces alone to determine future development. It is important to tackle the structural rigidities inherent in the segregation of national energy markets and to deal with the external constraints in order both to increase the security of energy supply and to improve environmental protection.

The completion of the single market in energy will have a central bearing on the development of the regions during the 1990s. Previously separate national markets will merge to become a single Community market which will increase compe-

tion and encourage a more rational allocation of primary and secondary energy resources on a Community-wide scale. This will help to lower prices to consumers and producers at national and Community level. It is therefore essential that gas and electricity networks are conceived and implemented on a Community-wide basis in order that the creation of a single market for energy can achieve its full potential as a factor in national and regional economic development⁴.

To ensure that all regions share fully in the advantages of a single market in energy requires:

- 1) the adaptation and integration of networks for natural gas and electricity across the Community as a whole;
- 2) the pursuit of better management of energy demand at the regional and local level through the promotion of more rational use of energy and through fuller development of locally available resources. To this end, energy planning should enable an assessment to be made of the

role of energy in the overall economic development of a region.

The Community already has an important interconnected network for the transmission of energy. Only Ireland remains completely outside the systems which are in place. In the case of natural gas, Spain and the UK are not yet linked to the Community network while gas networks do not exist in Greece and Portugal.

The availability of sufficient, competitive sources of energy is as vital to regional development as the existence of a qualified work force and good lines of communication. Many less developed regions suffer from a chronic lack of local energy supplies capable of supporting major investments in new activities. An important way of correcting this deficiency is through connection to electricity and gas transmission networks.

Electricity networks

Intra-Community imports of electricity represented

8% of total consumption in Europe in 1990 (as against 2% in 1950). The interconnection of national grids is estimated to save 3% of the total costs of supply. Savings could rise to 5-6% of the cost of electricity production if available Community transmission capacities were fully utilized and 10% if the system of inter-connections were complete and did not constrain trade in any way (each 1% saving was worth 300 million ECU in 1990). Connecting national grids could also benefit less favoured regions by increasing the security of supply and reducing costs.

The main strengthening of inter-country links involves:

- in the South of Europe, the links between: France and Italy; Italy and Greece; Italy, Switzerland, Austria and Yugoslavia; France and Spain and Spain and Portugal;
- in the North of Europe, the links between: France, Belgium and the Netherlands; France and Germany; Ireland and the UK and Germany, Denmark and Sweden.

Present links are wholly inadequate between the old West Germany and the new five Länder which made up the former East Germany, as well as more generally between the Community and Central and Eastern Europe.

The plans to establish new or better transmission links between Spain and France, France and Italy, Italy and Greece and the UK and Ireland are the most urgent.

Natural gas networks

The growth projected in natural gas consumption (around 50% between 1990 and 2010) cannot happen without extended transmission networks. At present five countries (the UK, Ireland, Greece, Spain and Portugal) are not linked to the European network at all (Map 17).

Priority projects are:

- in southern Europe, an increase in capacity for the trans-Med pipeline, the construction of a pipeline between Algeria

and Spain and Spain and France as well as the construction of gas infrastructures in Greece and Portugal;

- in northern Europe, new pipelines between Ireland and the UK and across the North Sea (from the Norwegian wells and between the Dutch and UK wells) as well as between the West of Germany and the new Länder).

In the longer term the inter-connection of networks should be extended by:

- linking the UK with the Continent;
- linking Scandinavian countries with the Community;
- constructing gas links between North Africa and the Community.

The Community's REGEN initiative is attempting to accelerate the introduction of transmission networks in some of the weaker regions — Greece, Portugal, Ireland, Corsica and Sardinia — and their inter-connec-

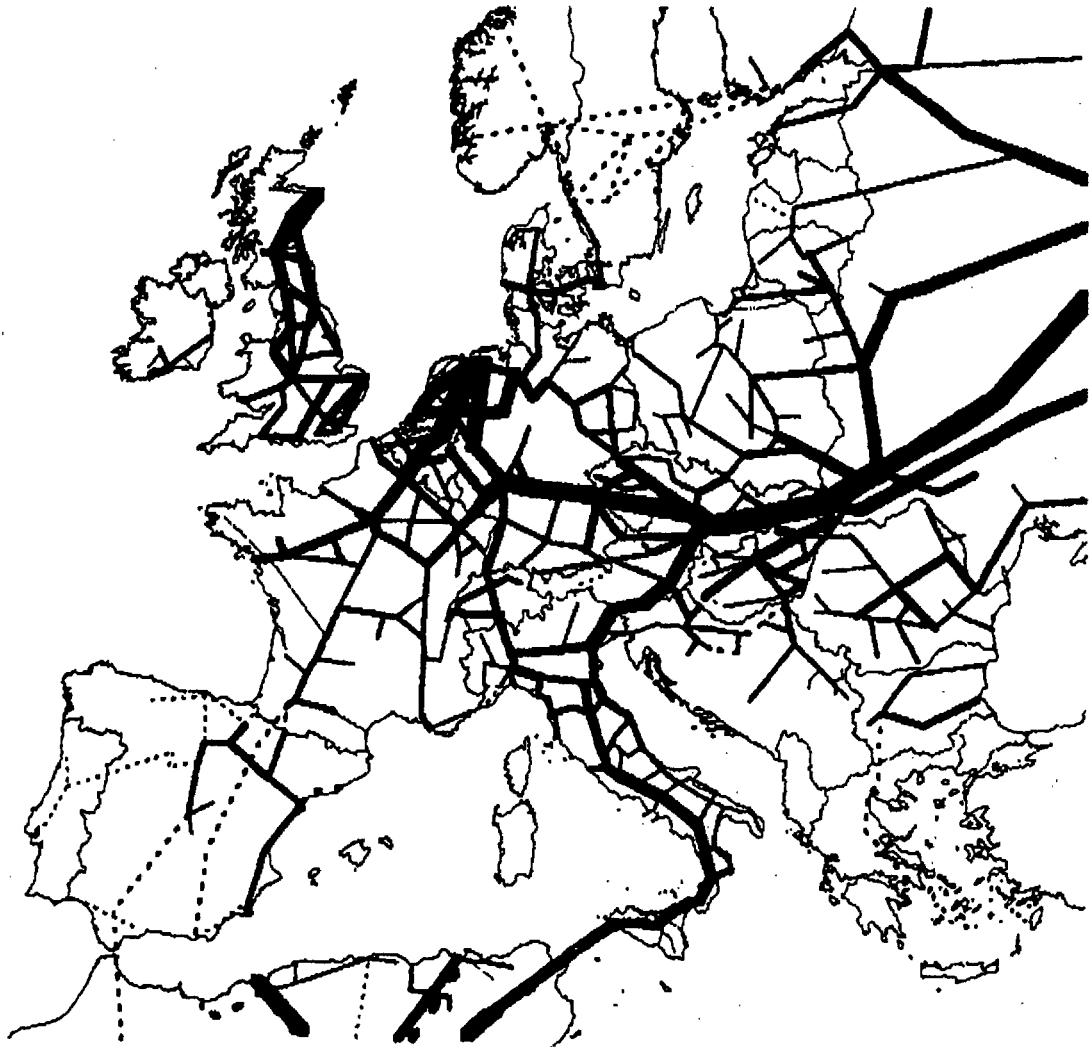
tion with Community-wide networks.

New generating capacity

The development and integration of transmission networks for energy provide a partial answer but do not avoid the need for the construction of electricity generating plants on new sites which are technically limited in number. Even in the interests of protecting the environment it does not seem desirable to confine the production of thermal electricity to new plants constructed on currently available sites when the use of less polluting natural gas in generating plants capable of using more than one fuel enables production to be decentralized in small economic units, well suited to local needs and to the protection of the environment.

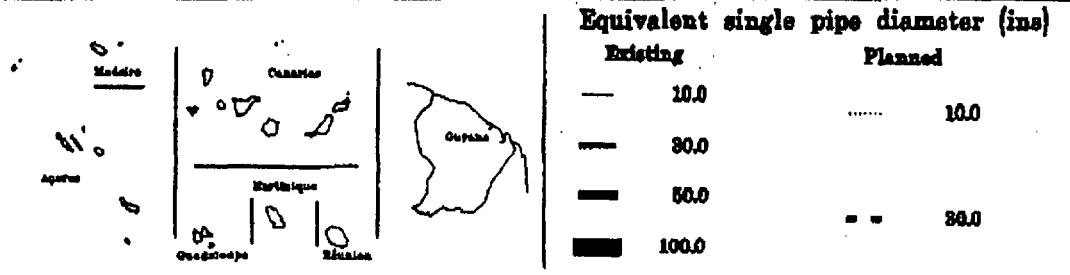
In this context, there is a role for the establishment of systems of guidelines to define areas reserved for the construction of new electricity generating plants and "corridors" for energy transmission while respecting the environmental constraint.

Map 17 The European gas transmission network, 1988



Source : Oil and Gas Yearbook, 1988

Note : Excludes pipes to offshore fields and all pipes <10" diameter



Prospects for cooperation with neighbouring non-member countries

Community energy policy has equally to be conceived in the context of relations with EFTA countries, Central and Eastern Europe and countries around the Mediterranean, many of which are important suppliers of primary energy. The proposed European charter for energy provides a suitable framework for the development of extended electricity and gas transmission networks.

The rapidly expanding use of gas provides a particularly suitable basis for the development of technical cooperation between Member States and the main suppliers, which are Norway, the USSR and Algeria. In the case of electricity, the access of Central and Eastern European countries to the Western European network requires as a prerequisite a sufficient development of their own networks and generating plants, which on first estimates, could take 10 years.

In the meantime, cooperation can be developed on the basis of techniques for controlling exchange and for reducing pollution from thermal generating plants.

By the year 2000 imports of natural gas are likely to represent up to 50% of Community consumption as against 38% in 1990. This growth of imports needs to be accompanied by increased cooperation at Community level for the development and integration of energy transmission networks. The physical limits to the expansion of the use of natural gas in the production of electricity, however, leave an important place for the development of technologies for clean and economic use of coal and nuclear power.

Developing a regional energy programme

The integration of European networks of energy is not the only response to the energy problems of less favoured regions in the Community. Rural or tourist areas, mountain regions or

the islands are favourable places for the development of renewable energy sources and for small-size production units. Where the local energy supply potentially available provides the opportunity, a hydro-electricity generating plant can be made economic by coordinated management of regional production capacity. Moreover the contribution of other renewable sources (biomass, solar, wind, wave-power and so on), though small in relation to the overall energy balance, could in certain regions provide up to 10% of their primary energy needs. In particular, in peripheral and rural regions, renewable energy sources often constitute an important factor for their development.

The implementation of the VALOREN programme to promote the development of indigenous potential supply has demonstrated the interest of regions in action to promote energy saving and the substitution of other energy sources for oil. Since there are wide variations in energy supply and use, there is a clear need for encouraging the adaptation of supply to specific circumstances through systematic energy planning at the local and re-

gional level. The establishment of regional bodies might be considered to give advice and assistance to potential investors on energy choice.

In the highly developed and densely populated regions faced by a major problem of pollution, energy planning is essential to achieve compatibility between economic competitiveness and the quality of life.

Footnotes

- 1 *The statistics in this chapter are from the Statistical Office of the European Communities (EUROSTAT), except where otherwise stated.*
 - 2 *European Commission (July 1990), Inventaire des principaux aspects du secteur de l'électricité dans la Communauté Européenne.*
 - 3 *European Commission (July 1990), Energy for a new century: the European perspective. Energy in Europe Special Issue.*
 - 4 *These networks are discussed in a forthcoming Communication of the Commission: Electricity and natural gas transmission infrastructure in the Community.*
-

Infrastructure and the Structural Funds

Examples of major infrastructure operations in the Objective 1 regions as part of overall programmes of regional development:

Greece

Roads programme: ERDF assistance of 208 million ECU. The programme involves the construction of 53.5 km of new motorway between Athens and Yliki and some 45km of motorway between Athens and Corinth (excluding Kakia Skala corridor)

Rail programme: ERDF assistance 142 million ECU. Installation of twin track on the Athens-Thessaloniki line and the installation of signalling along sections where this has not yet been done.

Telecom programme: ERDF 117 million ECU, BSF 20 million ECU. OTE modernization

Energy large projects: 1989 150 million ECU Megalopolis power station, additional projects 39 million ECU including preparatory work for the Crete underwater cable link

Natural Gas major project: 190 million ECU installations for the importation of natural gas

Achelous programme: ERDF 80 million ECU. Sykia project, tunnel in direction of Thessalia, Pefkofyte power station.

REGEN Community initiative: 86 million ECU — high pressure pipeline bringing gas from the border with Bulgaria to Athens

INTERREG Community initiative: Epirus to Thrace road, port infrastructure in Thessaloniki, Alexandroupoli, airport infrastructure in Hania.

Portugal

PRODAC programme: ERDF 584 million ECU: mostly roads, but also rail 124 million ECU and ports 25 million ECU

Large road projects: Estoril motorway and the North-South highway

Telecommunications programme: ERDF 44 million ECU. Rural telecommunications installations

Energy programme: ERDF 116 million ECU. Largely electricity and gas installations in Lisbon, Porto and Coimbra

REGEN Community initiative: Gas transmission networks and interconnections between the transmission systems of Portugal and Spain.

Ireland

Peripherality programme: ERDF 645 million ECU of which national primary routes 512 million ECU, airports 60 million ECU and commercial seaports 34 million ECU.

REGEN Community initiative: Ireland to UK gas interconnector.

Northern Ireland

Transportation programme: ERDF 137 million ECU of which ports 67 million ECU (Belfast, Larne, Londonderry and Warrenpoint), airports in Belfast and Eglinton 29 million ECU and rail 26 million ECU including the cross border link.

Spain

Road Infrastructure: The ERDF will contribute over 2000 million ECU for road infrastructure in the Spanish Objective 1 regions between 1989 and 1993 through individual major projects and regional programmes. Example: Sevilla-Granada motorway.

Rail Infrastructure: ERDF assistance over 620 million ECU, much of which will go towards the TGV link between Madrid and Sevilla.

Italy

Energy infrastructure: ERDF assistance 879 million ECU mainly for the natural gas distribution network in the Mezzogiorno (Metanizzazione)

INTERREG Community Initiative — Spain and Portugal

In the 'Highways for Integration' sub-programme (total assistance 297 million ECU):

- Via Longitudinal d'Algarve — this road will help link the tourist regions of Andalusia and the Algarve.
- Motorway links between Badajoz and Portugal.

Section C : Environment

Environment and Natural Resources

Economic activity in the Community is often associated with environmental degradation, excessive depletion of resources and damage to the natural heritage. A more integrated Community must set its economic objectives in terms of sustainable growth. A clean and attractive environment is becoming increasingly important for long-term economic growth. In recent years, the efforts made to reduce air and water pollution and protect nature, especially in the more developed and congested conurbations in the North of the Community, reflect changing attitudes and the availability of new technologies. Major environmental problems remain. Emissions from the growing numbers of motor vehicles, the levels of carbon dioxide, the pollution of drinking water supplies and coastal waters continue at unacceptable levels, while the problem of dealing with wastes is becoming critical. The continuing deterioration of the Community's natural heritage calls for coordination of systems of designation, protection and management of naturally attractive areas. Financial support mechanisms, education and publicity measures, fiscal incentives as well as harmonized standards and widespread enforcement of legislation will be required to restore and protect the Community's environment in the 1990s.

Sustainable development

It has become increasingly clear that economic growth and environmental protection need not be contradictory objectives. The pattern

and form of economic activity can be adjusted so as to avoid further degradation of the environment and damage to natural resources and thereby ensure that development is sustainable. Equally, areas suffering excessive environmental degradation can take steps to reverse the process of deterioration.

Within the Community, regions responsible for creating pollution are not always the ones to suffer its consequences. Examples are numerous: the use of the Rhine to dispose of wastes progressively limits its value as a resource, from Switzerland through Germany, France and the Netherlands; the sulphur emissions from

Environmental legislation

Although Community legislation has achieved a degree of harmonization, considerable differences in environmental norms still exist from country to country within the Community. Variations in the degree to which Community environmental legislation is applied in national laws and implemented in practice is an important source of these differences.

The number of national laws not conforming to Community law remains high. The implementation of the laws appears to be inadequate if judged according to the number of complaints received on non-conformity to environmental Directives. These numbered 17 in the period 1982-1984, 352 in the period 1985-1987 and 1141 in the period 1988-1990 (Annex to the 8th Annual Report to the European Parliament on infringement).

Legislation is, however, only one instrument with which environmental pressures can be influenced favourably. Others are: providing education, publicity and training; creating reliable information and data; economic and fiscal incentives and disincentives (eg lower duties on lead free petrol); financial support mechanisms; land-use planning; and introducing the environmental dimension in other policies.

industrial processes drift from their source into neighbouring areas.

The relatively few remaining wild and scenic landscapes, untrammelled by humans and home to many plant and animal species, are assets to the whole of the Community. Such regions are often in the more peripheral and economically less-favoured areas. The burden of protecting them needs to be shared between the regions where they are located and the rest of the Community. It is in the interest of the Community as a whole to ensure that exploitation of the natural endowment of these regions — for example, through tourism — is as sensitive to the environment as possible.

The environment in the Community is also affected by external events in third countries, and the Community in turn contributes to environmental problems beyond its frontiers. The problems of the greenhouse effect and climatic change are cases in point. These cannot be resolved by individual country action. The likelihood of effecting real change is enhanced if the Community acts as a single

unit, negotiating from a position of strength derived from having introduced effective environmental measures within its own frontiers.

A more integrated Community over the next decades must increasingly set its economic objectives in terms of sustainable growth. The possible entry of Austria, Sweden and/or other Scandinavian countries would tend to reinforce this type of approach. Without a reversal of the environmental degradation of the past, the older industrial regions will be bypassed by regions encouraging modern cleaner forms of activity. Similarly, in the regions lagging behind, environmentally insensitive development will damage their economic prospects at a time when many firms are actively seeking out environmentally attractive locations. For the stronger regions, the failure of the Community to achieve improved regional balance implies further congestion with all its associated environmental costs.

Sound management of the environment and natural resources is important for long term economic growth and

The major air emissions and their effects

Despite the wide range of pollutants emitted into the air from many different sources, three major categories of emissions can be distinguished.

Gases responsible for the greenhouse effect. The main ones are: carbon dioxide (CO₂), chlorofluorocarbons (CFCs) and methane.

The greenhouse effect refers to a gradual warming up of the earth's atmosphere by a two-fold process caused by such gases. Some, such as CO₂, concentrate in the atmosphere and reduce the flow of longwave radiation from the earth; others, such as CFCs, erode the ozone layer in the outer atmosphere, which normally protects the earth from excessive ultra-violet radiation. The effects of the resulting increase in global temperatures include increased sea levels, climatic changes, a higher incidence of skin cancer.

Emissions strongly associated with the transport sector. The main ones (in addition to CO₂) are: nitrogen oxides (NO_x), carbon monoxide (CO) and hydrocarbons (HC).

High concentrations of these gases, and of pollutants produced from them by chemical reactions in the atmosphere or in soils, are harmful to human health, cause corrosion to materials, damage vegetation, reduce the productivity of agriculture and forestry and cause odours.

Of the remaining gases, sulphur dioxide (SO₂) is the most significant. SO₂ is responsible for causing respiratory and cardiovascular disease and, as the main causative agent in the formation of acid rain, for the corrosion of metals and stone, for inflicting damage on forests and other vegetation and eliminating aquatic life from surface waters.

this will need to continue to be reflected in Community regional policy. Investment carried out now to prevent excessive environmental damage in the future will help to avoid the far greater costs of cleaning up pollution and adjusting to the over-depletion of natural resources.

A start has already been made by increasing the finance allocated through the Structural Funds to environmental improvement in the weaker regions of the Community (3,350 million ECU for the period 1989-93) as well as taking into account

in a systematic way environmental considerations when providing financial assistance for major infrastructural projects.

Patterns of air pollution

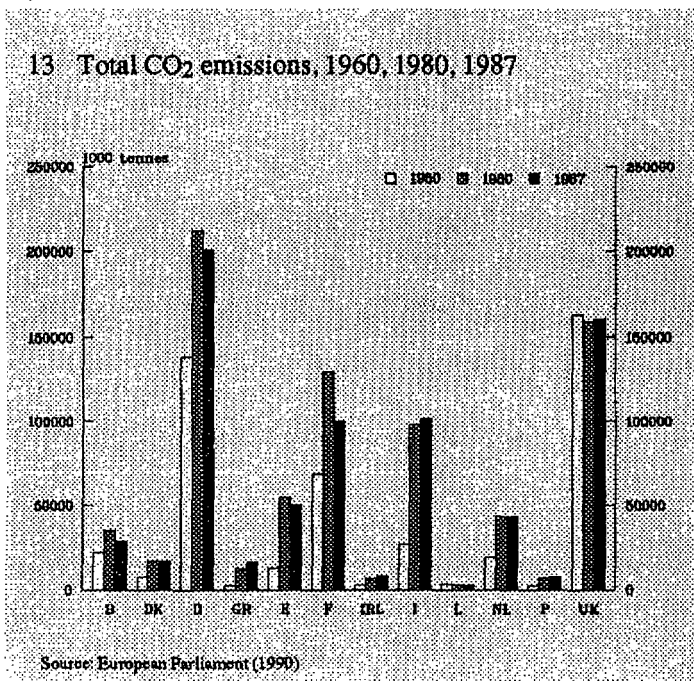
Globally the combustion of fossil fuels (oil, coal and gas) accounts at present for more than 5,700 million tons of carbon dioxide (CO₂), one of the main greenhouse gases, being re-

leased into the atmosphere annually. Of this, more than 750 million tons, or 13%, are from the Community¹, proportionately more emanating from oil and petrol than in other parts of the world.

As a result of energy conservation measures, structural changes in energy supply and industrial production initiated mainly by the large rise in oil prices, emissions have declined from 800 million tons in 1980, after doubling over the previous 20 years. This decline, however, has shown a reversal since 1986. The major economies of the Community, with the highest levels of industrial and social development, are the primary sources of emission both in absolute and per capita terms (Graphs 13 and 14).

The Community has committed itself to emitting no more CO₂ in the year 2000 than in 1990 and to reducing emissions by 2005-2010. However, the problem of emission reduction can seriously be addressed only at a global level via such actions as the implementation of stringent measures to use fossil fuel more efficiently, the development of safe

13 Total CO₂ emissions, 1960, 1980, 1987



non-polluting alternative energy sources, the elimination of CFCs, a slowdown in the rate of destruction of rain forests, and so on. Even with a considerable degree of action and global collaboration the Intergovernmental Panel on Climatic Change predicted a sea level rise of 8–29 cm (with a best estimate of 18 cm) by 2030. Low-lying coastal plains, dunes and wetlands will suffer major ecological and economic impacts and towns such as Venice will be even more vulnerable to flooding than now.

Even if a standstill in CO₂ emissions is achieved by the year 2000, atmospheric concentrations will continue to increase for many years after. Concentrations of other greenhouse gases are also increasing. Reducing the emissions of greenhouse gases and other major air pollutants in the longer term will require costly changes in the way energy is produced and used. These costs ought to be borne primarily by those Community economies creating most pollution. The costs of inaction are incalculable.

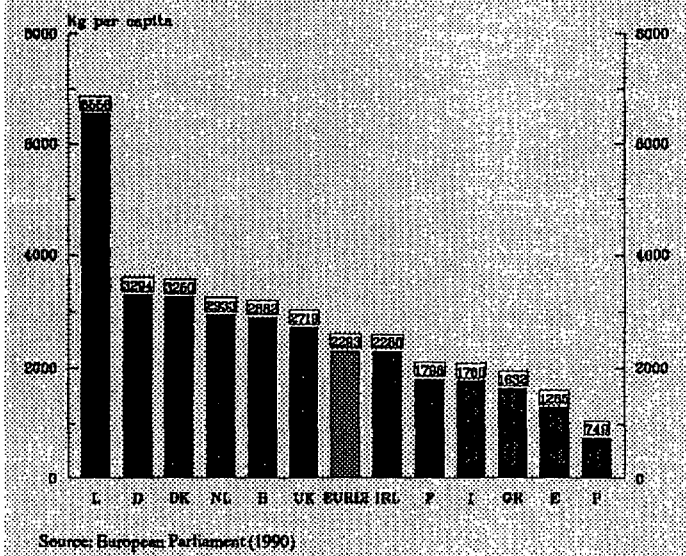
Thermal power stations and industrial and domestic

heating account for 88% of emissions of sulphur dioxide (SO₂) in the Community². Between 1970 and 1986, emissions declined by about 50%, because of emission controls, the development of nuclear energy, energy conservation measures, use of lower sulphur fuels and changes in the structure of Community economies, with, in particular, a decline in iron and steel production. Since the end of the recession of the early 1980s, increased economic activity has brought the decline to an end.

The EC Directive on sulphur dioxide emissions from large combustion plants requires a further reduction of 57% from the 1980 level of 14.4 million tons to 6.2 million tons by 2005. This is realistic if the potential of new clean coal technologies, which will be fully commercial by the mid-1990s, is exploited.

Spatially, emissions are concentrated in certain urban areas in northern parts of the Community (Maps 18 and 19). There is significant scope for further action.

14 Per capita CO₂ emissions, 1987



The task of reducing emissions has only just begun in Central and Eastern Europe, where SO₂ emissions are still very high and are a major source of air pollution in parts of the Community. In 1985/86, annual emissions were estimated at 5 million tons in East Germany, over 4 million tons in Poland and more than 3 million tons in Czechoslovakia³. On a per capita basis, these levels are almost ten times higher than those in the Community. Since political reform began, emissions have declined as a result of industrial closures.

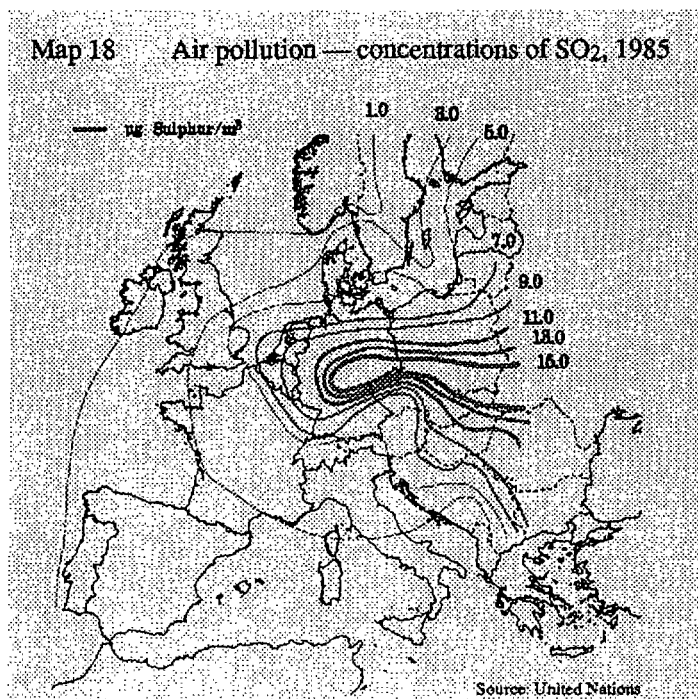
Economic restructuring and reduced dependence on coal and lignite should cause this decline to continue.

A number of other emissions, such as nitrogen oxides (NO_x), hydrocarbons (HC) and carbon monoxide (CO) are, like CO₂, strongly associated with the transport sector (which is responsible for 58% of NO_x, 50% of HC, and 75% of CO emissions) (Map 20)⁴. Although these are tending to stabilize in the more developed economies, they are continuing to grow in the less de-

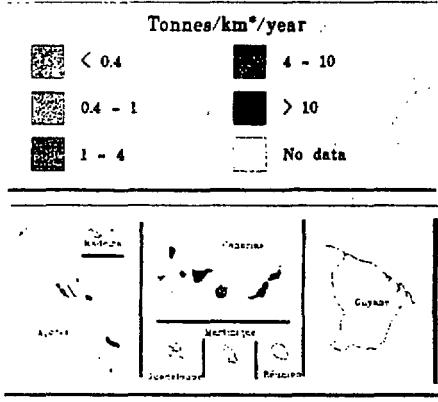
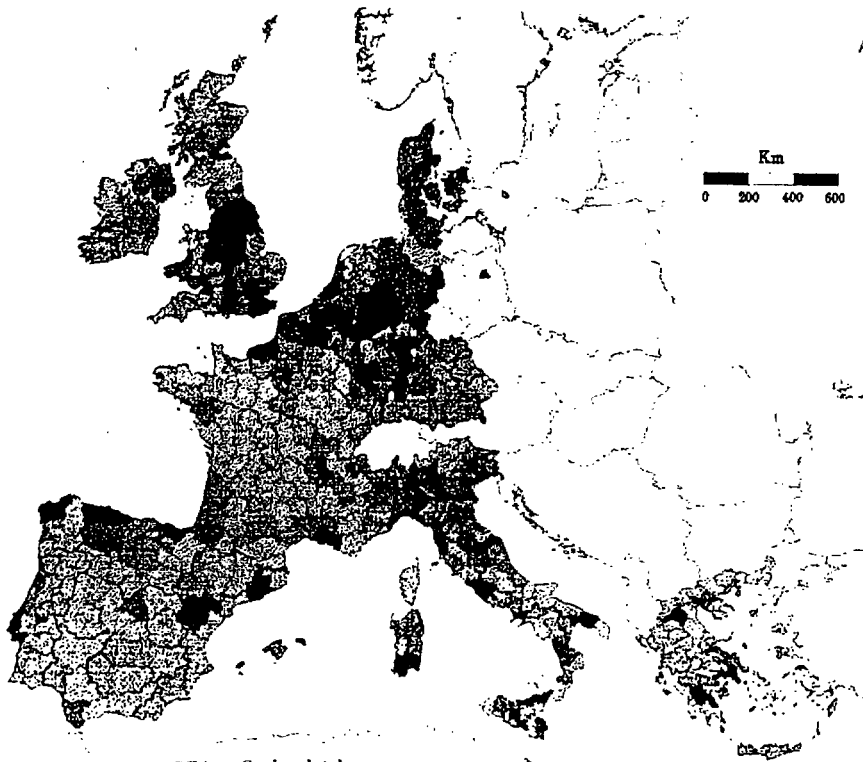
veloped ones. Community Directives imposing stricter emission norms on vehicles have had positive results. However, continuing growth in the number of vehicles and their use is threatening the progress made to date. In the last 4 years, petrol consumption in the Community has increased by 1 1/2% a year. In the Netherlands, which has the highest concentration of motor vehicles per square Km, private car usage is projected to increase by 70% in the next 20 years⁵. Even more rapid growth is likely in the developing economies. As a result, emissions of hydrocarbons are expected to grow by 10% before the end of the century.

There are two main ways in which transport emissions might be limited:

- by encouraging the development and use of more fuel efficient vehicles by fiscal and/or regulatory measures, development of alternative power sources and the introduction of more efficient traffic systems;
- by stimulating a reduction in vehicle use — in

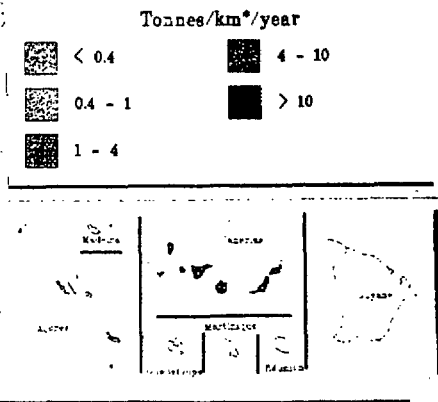
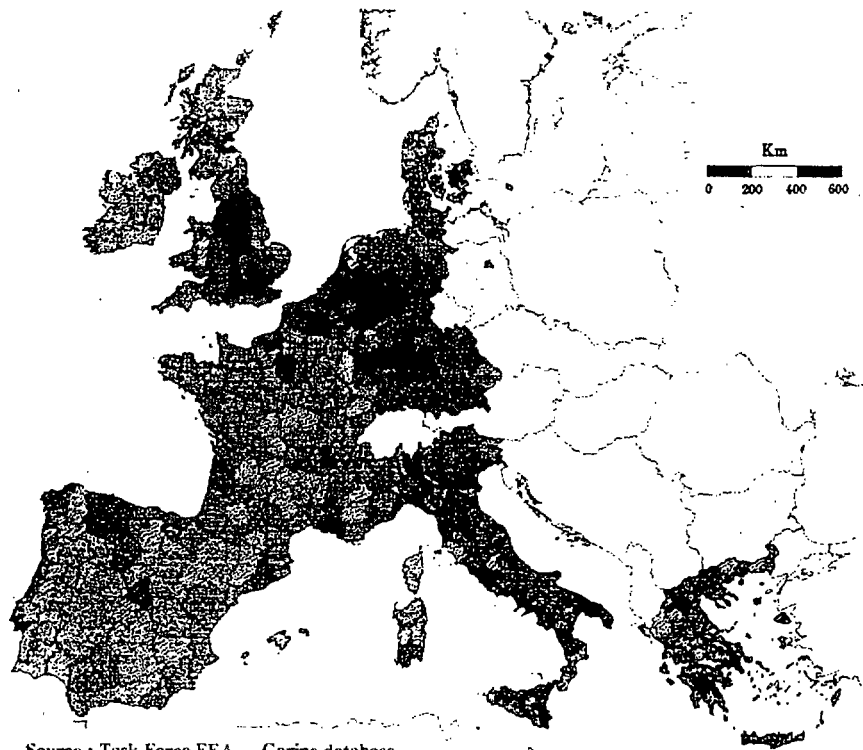


Air pollution
- total emissions of SO₂, 1985



Source : Task Force EEA - Corine database

Air pollution
- total emissions of NO_x, 1985



Source : Task Force EEA - Corine database

the shorter term by fiscal or other measures, in the longer term through new patterns in day-to-day living and the organization of social and economic activities.

In the latter case, physical planning can reduce the use of private cars by, for example, ensuring that new places of work are readily accessible by public transport.

Water resources

Water use and consumption

Between 1970 and 1985, the average annual use of water in the Community rose from 600 to 800 cubic metres per person. Water use varies greatly between areas according to the importance of industry, agricultural irrigation, population and climate. Agriculture is by far the

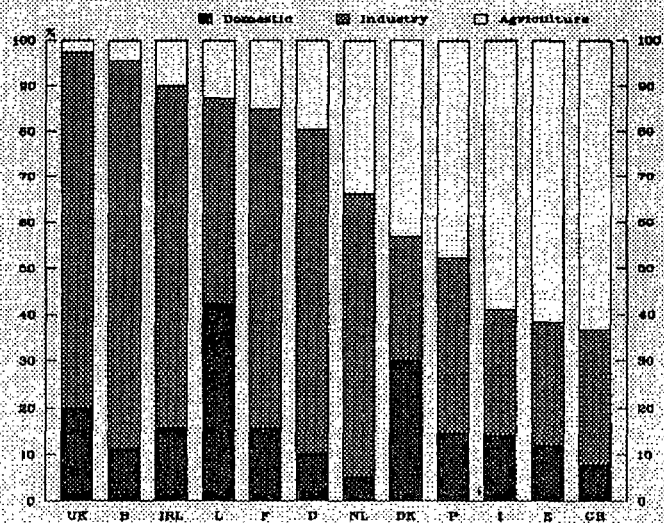
largest user of water in Denmark, Greece, Italy, Portugal and Spain, while in Belgium, France, Germany, Ireland, Luxembourg and the UK, industry is the largest user (Graph 15).

In the more arid areas in Spain the level of use per capita is more than 8 times that in Luxembourg. In most Member States per capita use has been relatively stable since 1980, but has increased markedly in Greece, Portugal and Spain, reflecting in large part greater agricultural

use. In such areas where water is short, measures to cut demand may often be more cost-effective than investment to increase supply (Graph 16).

Low population growth, only modest expansion in the land under irrigation and improvements in the efficiency with which water is used is likely over the next 10 years to slow down growth in the demand for water. Industry in the most industrialized countries has made progress in reducing water consumption, often moti-

15 Allocation of water withdrawals, 1985



Source: Eurostat

vated by water metering. The same is true of households, though domestic metering practices vary greatly between and within countries. In the less developed economies, there is more likely to be increased consumption as industrial activity and the standard of living increase.

At the local level, droughts, increases in the amount of water used in production by industry and problems of supply can lead to shortages and hardship. Due to their size and physical characteristics, many islands suffer in par-

ticular from water supply problems.

Although the annual consumption of water used is on average well below the rate at which supplies are renewed, there are major regional variations in the balance between demand and supply. Excessive depletion of water reserves occurs not just in the drier areas of the Community, but also in regions of heavy demand such as South-East England. Across Europe, only about 35% of use represents depletion. The remainder is returned to rivers, lakes or coastal waters as waste

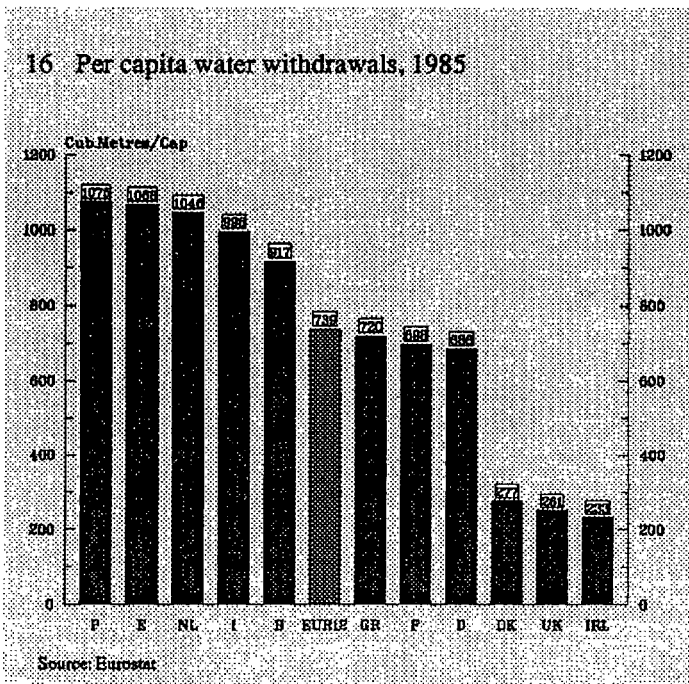
water of varying, but too often poor, quality before being recycled into supply.

Ground water

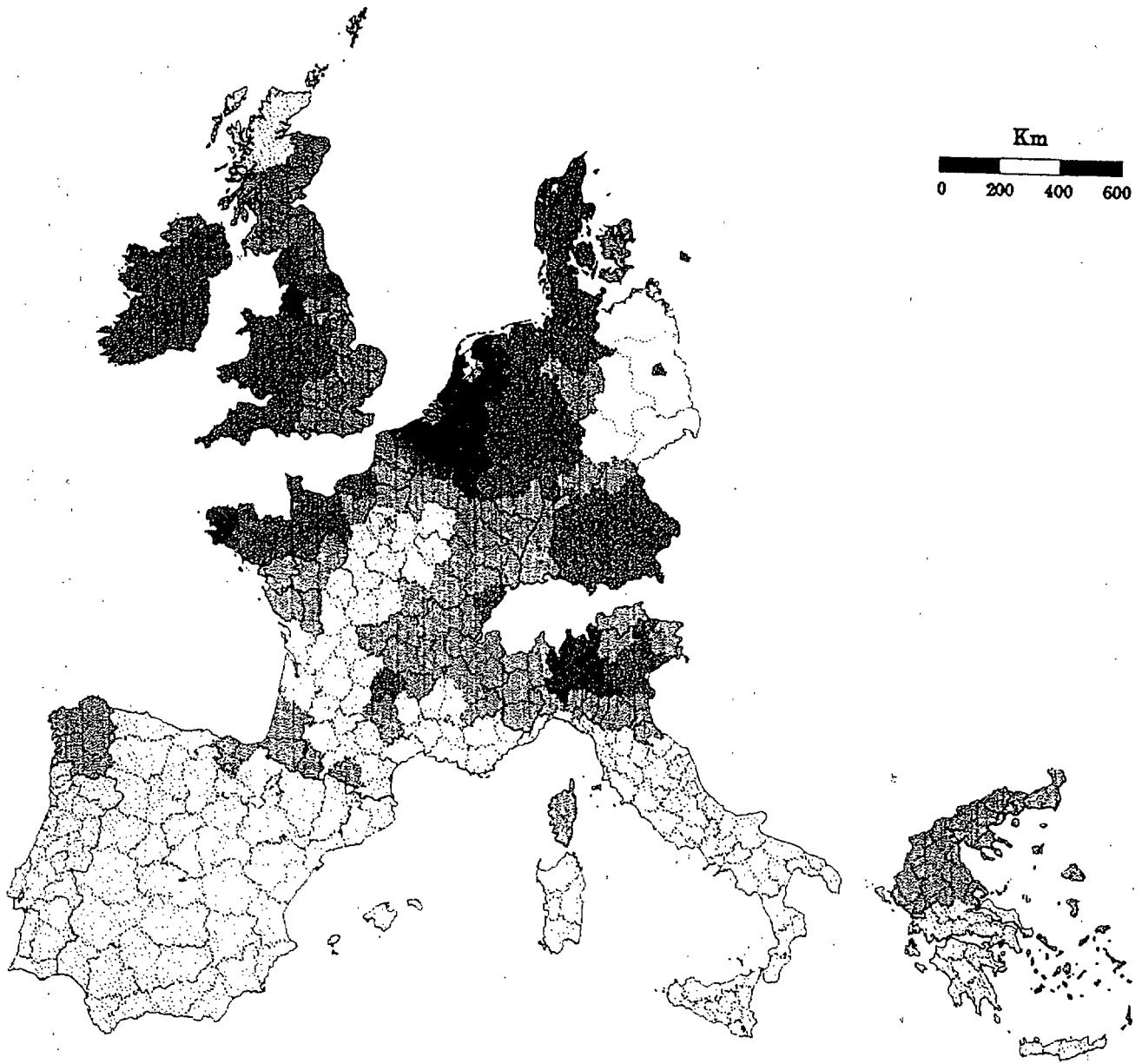
Ground water is the major source of drinking water supply in the Community, accounting for 75% of the total, and for 88% in Italy and as much as 98% in Denmark⁶.

Excessive withdrawal of ground water is not a general problem across the Community. There are, however, local and regional problems due to increasing demand in drier areas of Portugal, Spain and especially Greece, where the sustainability of existing economic structure is threatened. Problems also occur, however, in northern countries such as the Netherlands, where the present demand for ground water exceeds the natural supply.

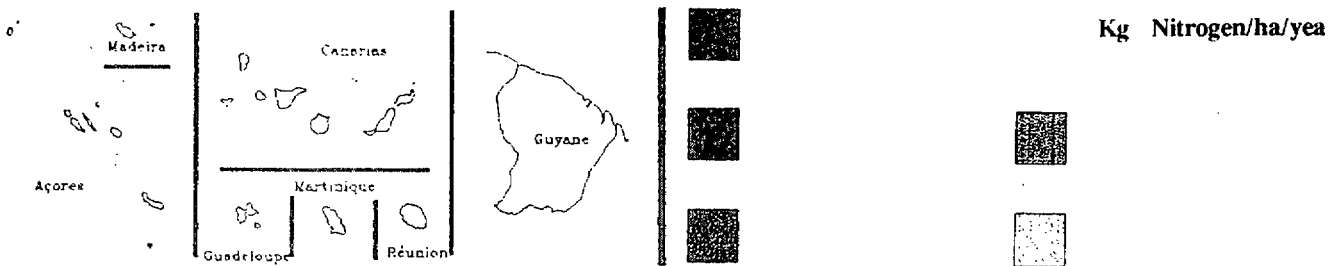
Another serious problem, particularly in the more developed countries, is pollution where there is mounting evidence of serious and widespread contamination of supplies.



Nitrogen Produced by Animal Wastes



Source : Task Force EEA - Corine database



Despite the contamination by a whole range of substances often associated with industrial activities or landfill sites, the major source of ground water pollution is high nitrate concentrations. These are largely attributable to the use of mineralized fertilisers and the disposal of manure in intensive livestock areas and can lead to increased health risks (Map 21).

Concentrations are found in many areas of the Community. In Denmark the average nitrate level of ground water has tripled over the last 30 years and is continuing to increase by about 3.3 milligrams per litre a year so that 8% of pumping stations now exceed the EC standard of 50 milligrams per litre. An estimated 800 thousand people in France, 850 thousand in the UK and 2.5 million in the former Federal Republic are drinking water with nitrate concentrations above the EC standard.

Ground water is replenished only slowly as water filters gradually into the aquifers. Despite recent reductions in fertiliser use in some Member States, a high proportion of contaminants leached from the soil in the past de-

cade will not yet have penetrated the water bearing layers. Even if the EC-Directive for drinking water is adhered to, the nitrate content in the ground water in shallow wells in the Netherlands, Belgium, Denmark and Germany will only reach an acceptable level in 25 to 50 years time. In deeper wells, this time span is even longer and the proportion of ground water failing to meet EC standards will continue to increase⁷.

Not only are major sources of drinking water polluted for the long-term, but the same is true of the soil, affecting both agricultural production and nature areas. A stricter designation of threatened areas of groundwater supply together with tighter standards could help prevent a further worsening of the situation. Areas crossing national borders or affected by water coming from other countries are cases where Community involvement could be of particular importance.

Rivers and lakes

Surface water in rivers and lakes is also a very signifi-

cant source of drinking water in most Member States. At the same time, it serves other important economic and social functions, such as transportation, recreation and power supply, as well as being the destination for millions of tons of waste. The latter has led to surface water pollution in many areas of the Community reaching levels which are threatening not only drinking water but also agriculture and tourism.

Although there is an overall trend improvement in the quality of surface water, there is great spatial diversity in the patterns of pollution, with the highest levels naturally being found in areas of high population density, industrial activity and intensive farming. In the new German Länder pollution was allowed to continue unabated. Only 3% of the rivers and 1% of the lakes were found to be ecologically fully intact when measured in 1989⁸.

Trends as regards the main pollutants of surface water in the Community are:

- untreated or inadequately treated sewage is a problem in many areas; 50%

of the Community's population live in regions where sewage is not treated, the problems being greater in the less-developed regions (94% of Portuguese live in untreated areas) than the more developed (only 2% of Danes live in such areas); assistance is required to enable the less-favoured regions to meet the demands of the recent Community Directive demanding that all towns with a population of over 15,000 have sewage treatment plants by the year 2000, and all municipalities by 2005;

- nitrates and phosphates have been increasing throughout the Community, resulting in algal blooms which make the water more costly to treat or even unusable for industrial processes and drinking water supply; this highlights the need for positive action to counter progressive eutrophication of the Community's surface waters;
- heavy metal contamination of rivers is declining as progress has been made in regulating con-

ventional water pollutants from industrial sources in many major rivers such as the Rhine, where lead was halved in the period 1975-85; in a number of other rivers, however, such as the Seine, increases were recorded over the same period;

- non-conventional pollutants generated by the hundreds of new chemical compounds created annually pose a problem for the future, as the development of techniques to detect and measure them accurately lags behind the development of the compounds themselves, and legislative controls follow still further behind.

International cooperation is an effective way of dealing with the significant cross-border aspects of surface water pollution, since it enables a whole river basin and not just the worst point of pollution to be covered. Whereas international agreements have contributed to a reduction of certain pollutants into the Rhine, other cross-frontier river systems which are notorious-

ly polluted and becoming increasingly so, such as the Sambre/Meuse and Scheldt, are not yet subject to international conventions. The convention signed in September 1990 between Germany, Czechoslovakia and the Community to tackle pollution in the Elbe and initial agreements with Poland on the Oder point the way forward.

Coastal waters and seas

The impact of marine pollution is often far removed from its source. It has been estimated that a little under half of marine pollutants are discharged from land-based sources, either directly via marine outfalls or via rivers, about one third are from atmospheric sources and just under one quarter are from sea-based sources.

The future control of pollution in the marine environment of the Community will therefore depend primarily on measures taken to limit land-based pollution sources, which tend to

concentrate in the coastal areas. The major sources of problems are:

- nutrients (phosphates and nitrates) from the intensive use of fertilisers, causing extreme growth of algal masses, oxygen depletion, mass mortality of marine life and decline of tourism. It is estimated that rivers now bring four times as much nitrogen and seven times as much phosphorus into the North Sea as would be produced naturally; in recent years, nutrient concentrations in the coastal belt from the Netherlands to northern Denmark have doubled, while on the Baltic coastline the algae problem is even worse; in the northern Adriatic, algal masses reached thicknesses of 12 metres in the late 1980s and cost an estimated 1.5 billion ECU in lost revenue from tourism and fishing;
- lack of sewage treatment facilities, especially, but not only, in the Mediterranean, where they are totally inadequate to cope with the 100 million tourists in the summer season;

- heavy metals and organic compounds from industrial sources, for example along the Belgian and Dutch coasts, the German Bight, Liverpool Bay, the eastern estuaries of the UK and the Gironde in France.

Direct sea-based sources of pollution (dumping, incineration, maritime spills, discharges, etc) were tackled by international agreements in the 1970s. As a result, they have declined since then, and at an accelerating rate since the mid-1980s. In the North Sea, for example, the amounts of waste incinerated at sea declined from 113,000 tons in 1986 to 96,000 tons in 1988, and the North Sea countries have agreed to stop altogether by the end of 1991. The dumping of industrial waste will also, by agreement, largely be stopped by the end of 1992. (Despite a rapid reduction in the mid-1980s, 1.7 million tons of liquid waste and 2 million tons of solid waste were dumped in 1988.) Although there was a significant increase in the number of oil wells in the UK sector of the North Sea in the 1980s, the amount of oil spilled or leaked has remained reasonably stable⁹.

In the Mediterranean, oil from spills, leaks, flushings and accidents amounts to around 1 million tons a year and is unlikely to decline much given the problems of control.

Marine pollution from atmospheric sources, especially of heavy metals and synthetic organic compounds, is significant though largely diffuse and will follow the patterns of air pollution trends in general.

Of the seas around the Community, the Mediterranean is facing the greatest and most persistent problems. It is surrounded by less-favoured regions on the northern side and countries on the southern side which are not in a position to finance environmental protection; it is subject to fewer international agreements on controlling pollution and it has the great disadvantage of being an almost entirely closed sea, where the rates of flushing are much lower than for the other seas around the Community. This points to the need for an intensification of environmental investment in this region, as initiated by such programmes as ENVI-REG and MEDSPA, but also to effective legislation

and the application of educational and planning instruments to cope with the vastness of the problems.

Waste

Human activities in the Community — producers and consumers together — generate some 2,000 million tons of waste every year. About 20 million tons of this are dangerous substances (Graphs 17, 18 and 19).

The volumes of waste continue to grow. All Member States, except the former Federal Republic of Germany and the Netherlands, increased waste production in the first half of the 1980s. The more developed economies are the largest producers, Germany, France, UK and Italy accounting in the late 1980s for 85% of the Community's total volume and 78% of dangerous substances, and Ireland, Denmark, Portugal, Greece and Spain for just over 5% of the total and 4% of dangerous waste.

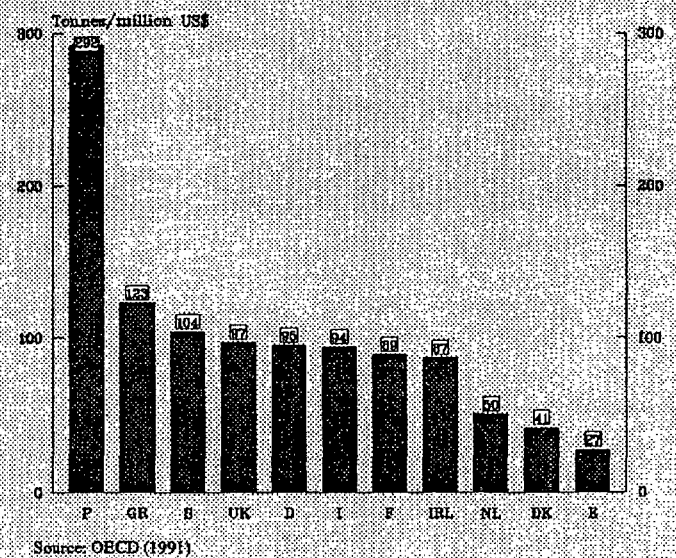
On average an estimated 60% of domestic wastes are

dumped, 33% incinerated and 7% composted¹⁰. The problem is increasingly a cross-border one. Until comparatively recently, Member States could avoid dumping or incinerating all their waste on their own territory by finding other countries who would accept and dispose of the waste more cheaply. Transport of waste between Member States was commonplace, but it was even more financially attractive to export the waste to Eastern Europe or the Third World or to dump or incinerate at sea. However, recent international agreements,

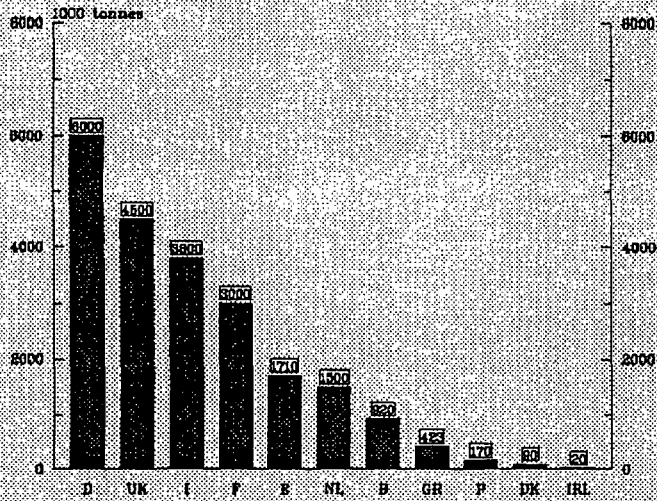
primarily the 1989 Basel Convention, will put a stop to these short-sighted solutions. Recently, the former Federal Republic has inherited the 700 thousand tons of dangerous waste it exported to the former GDR, together with the waste exported there by other countries.

The landfill solution to waste disposal is reaching its limits in the more densely populated regions of the Community. In other regions, where space is more readily available, it remains a possible solution, but the

17 Industrial waste per unit of GDP, late 1980s



18 Dangerous wastes, late 1980s

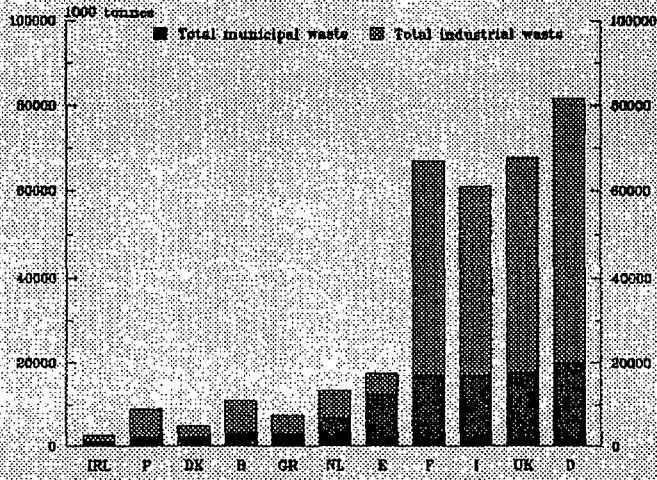


Source: OECD (1991)

potential for water and soil pollution and the opposition of local people limit the use of landfill in the long term. Its exploitation as a waste disposal option will depend on finding well situated sites and on pretreating certain wastes before dumping.

In many cases, incineration is a solution and has the advantage of generating energy, but investments must be made to prevent toxic emissions and plant must be efficiently designed and managed. Even then, careful land-use planning is required.

19 Municipal and industrial waste generated, late 1980s



Source: OECD (1991)

The best long-term solution must involve reducing the waste produced by decreasing the use of materials, especially in packaging, and above all by recycling. The impact of recycling is not just in decreasing the area of valuable land required for dumping or incineration plants, it can also significantly reduce pollution. Each ton of paper made from newsprint rather than wood lowers energy use by one quarter to three-fifths and air pollutants by some 75%. However, since not all materials can be recycled, the substitution of more benign materials for those currently causing pollution

problems is also an important policy goal.

There is a need for coordination and cooperation in finding solutions at the Community level. In border regions, for example, incineration plants could be constructed to serve a common catchment area. One such plant is already envisaged for Ireland, which would treat toxic wastes from both the Irish Republic and Northern Ireland, thereby increasing its viability and halting the existing transportation of waste to Great Britain. Similarly, the Baden-Wurtemberg region of Germany is planning to construct an incineration plant near Kehl which would also serve the Strasbourg area.

Europe's natural heritage

Economic growth and increasing population over the centuries have all led to a decrease in the abundance and diversity of wildlife and natural ecosystems in Eu-

rope. The Community does, however, still provide habitats for a large number of species — 9–10,000 higher plant species, some 600 birds, almost 150 mammals, over 20,000 invertebrates and 65 freshwater fish species¹¹. This natural heritage is of great scientific, economic and social importance.

The quality and richness of the environment and its vulnerability vary across the Community. The Mediterranean areas and mountain regions show, in general, a greater ecological richness and diversity than the northern areas. The French province of Alpes-Maritime, for example, has some 2,500 plant species, as many as the whole of the UK. While the Netherlands does not have any endemic plant species and Belgium only one, Spain and Greece have around 750 each. Moreover two-thirds of the different European mammal and amphibian species can be found in Italy alone¹².

Although there has been a considerable degree of stability in the distribution of the Community's land area between different major uses since 1955, the rate of

decline and loss of natural habitats has been steadily increasing. A significant percentage of the known plant and animal species in the Community are threatened. Over 1,000 higher plant species and 153 bird species are thought to be vulnerable or in danger of extinction. 20% of the invertebrates and 45 of the 65 indigenous freshwater fish species found in the Community are threatened. Over half of the known mammal species in France, the Netherlands and Portugal are under threat and over 80% of the reptile species in the Netherlands¹³.

The major pressures on wildlife are from habitat degradation and pollution, in addition to habitat disruption, hunting, collecting and the introduction of alien species. The main cause of habitat degradation are changes in land use away from those which offer a high diversity of habitats. Trends in land use can be summarized as follows:

- urban and suburban areas will continue to expand destroying habitat;
- agricultural crop land is diminishing throughout

the Community except in France, Greece, the Netherlands and the UK and permanent pasture has declined in all countries except Denmark and Ireland. The loss of agricultural land will almost certainly accelerate over the next 10 to 20 years, the rate depending on policy developments in the CAP, agricultural trade liberalization and environmental protection. The expected decline in intensively cultivated cropland should benefit natural habitats, particularly if a sufficient proportion in the right places is used either for extensive or organic agriculture or turned into well-managed natural areas. Changes in farming practice could also provide more diverse habitats without actually removing land from production;

- woodland and forests have increased in all Member States except the Benelux countries, from a total of 530,000 square Km in 1980 to 538,000 in 1988 and are due to increase further given Community policy.

During the 1980s, the rate of reforestation was greatest in Spain, followed by Germany and France, and lowest in Portugal and Ireland. Shifts from cropland to forests can improve the diversity of the landscape as naturally evolving forests offer good and diverse habitats, while intensively managed commercial forests, particularly of single species, may not;

- wetlands, marshes, bogs and dunes are natural habitats of extreme importance as breeding grounds for threatened species; losses of such areas have been significant, but they still constitute about 40% of registered sites in the Community. Habitats such as farmland or forest which tolerate much higher levels of human activity are as much part of the Community's natural heritage as others. The damage caused to wetlands and marshes from drainage, has increased over recent years, especially in the southern regions, while over-exploitation and heavy tourist develop-

ment are a continuing threat to these areas as well as to dunes.

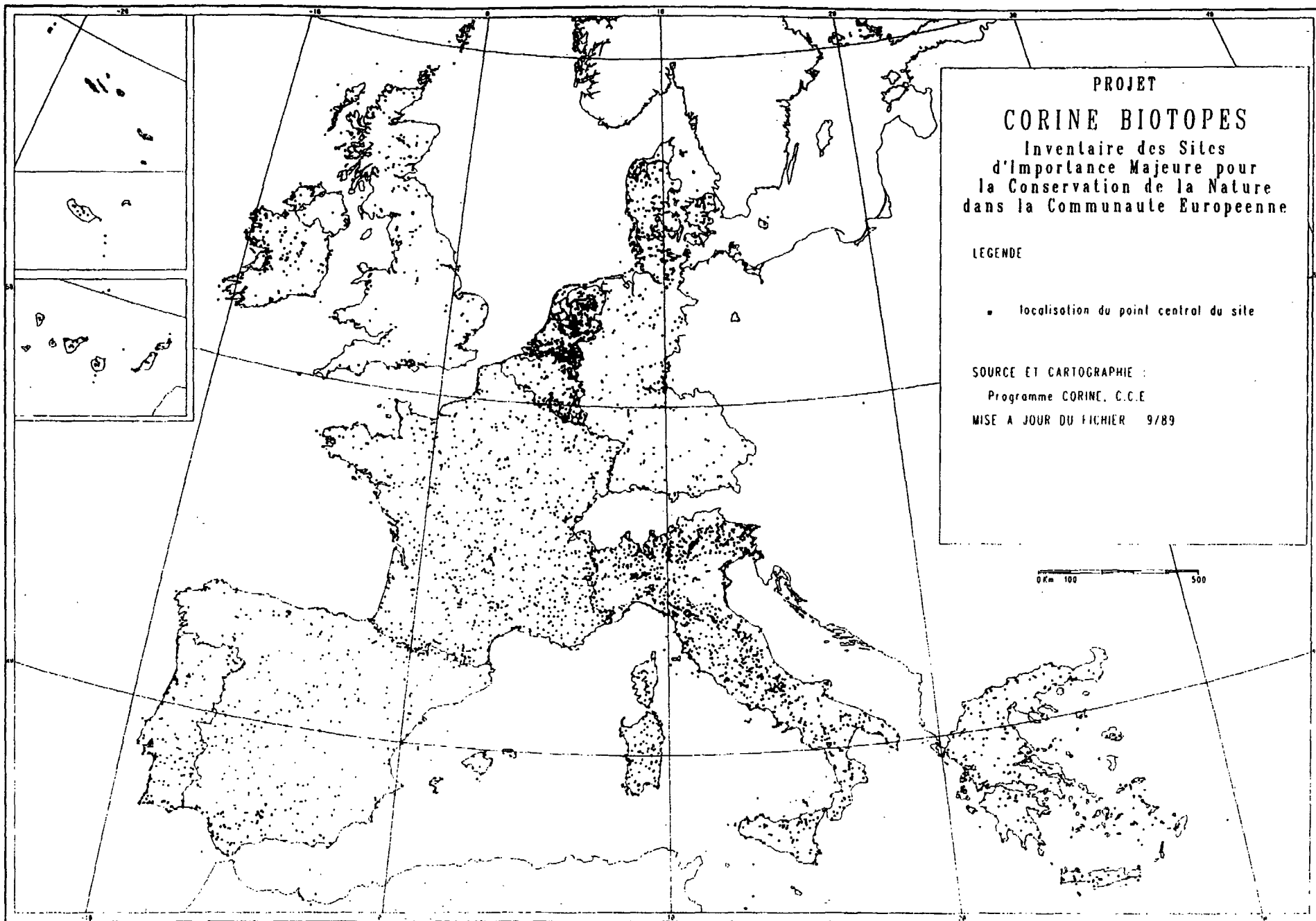
The other major pressure on wildlife, that from pollution, will not decrease sufficiently in the foreseeable future no longer to pose a threat to habitats. Oil spills, releases of toxic wastes into surface water, other municipal and industrial discharges, heavy transport and energy infrastructures, contamination from farmland, forestry sites and urban areas, and deposits from air pollutants will still be occurring at the end of the 1990s. While the threat to natural habitats in low-lying coastal and river areas comes mainly from pollution, urbanization and tourism are also important.

In the face of these threats, a whole range of nature areas have been designated across the Community, such as nature parks, bird sanctuaries and heritage coastlines. These, however, vary considerably in terms of the extent of land or number of species protected and in the type or level of protection afforded. Such inconsistencies mean that species which are protected in one part may remain under threat elsewhere.

The Single Act provides the Community with new possibilities to develop a coordinated policy of nature protection. A cornerstone of such a policy is the establishment by the year 2000 of a coherent network of sites of European importance on the basis of the draft Community Habitats Directive (Map 22).

Only about 1-2% of the total surface area of the Community is likely to need strict protection¹⁴, but an estimated 10-20% is of such importance to wildlife that management coordinated with other activities such as agriculture, forestry and recreation is required.

Many of the important sites for nature conservation are located in the poorer regions of the Community where the aspirations for economic development are considerable and the funds available for conservation the scarcest. If the network of nature areas is to be adequately implemented, it will need to form an important element of regional policy in the Community.



Footnotes

- 1 *European Commission (1990), Energy and Environment.*
- 2 *From CORINAIR database of the European Commission.*
- 3 *Royal Institute of International Affairs (1990), Environmental issues in eastern Europe: setting an agenda. London.*
- 4 *OECD (1991), State of the Environment. Paris.*
- 5 *SDU Uitgeverij (1990), Tweede Structuurschema verkeer en vervoer. Den Haag.*
- 6 *OECD (1989), Water resource management: integrated policies. Paris.*
- 7 *SDU Uitgeverij (1989), Derde nota waterhuishouding.*
- 8 *Bundesministerium für Umwelt (1989), Umwelt, Eckwerte der ökologischen Sanierung und Entwicklung in den neuen Ländern.*
- 9 *Third North Sea Conference (March 1991), Interim report on the quality status of the North Sea. The Hague.*
- 10 *European Commission (1989), Community strategy for the management of waste.*
- 11 *European Commission (1987), The state of the environment in the European Community 1986.*
- 12 *World Conservation Monitoring Centre (1989), European plants in peril. Grimmet and Jones (1989), Important bird areas in Europe. International Council for Bird Preservation, Technical publication N° 9.*
- 13 *Ibid.*
- 14 *European Commission (1985), Proposal for a Council Directive on the protection of natural and semi-natural habitats and of wild fauna and flora.*

**Section D : Specific types of
area in the Community**

The Development of the Community's Urban System

Europe's cities have undergone substantial changes in terms of size — area and population — and function. Economic change and development has been responsible for suburbanization in the North and rural to urban drift in the South. Recent trends suggest that it is the smaller cities and towns which are now growing fastest, creating greater balance in the Community's urban system. The largest cities will retain their economic dominance in many areas but, with the help of appropriate policies, new opportunities will arise for medium-sized cities including those in niche markets. Severe problems of unemployment, poverty and poor housing remain in many of the inner cities and peripheral estates which are sometimes linked to concentrations of migrants in certain parts of major cities. The problems of the urban areas call for more wide-ranging efforts in the 1990s. There is considerable scope for co-operation between cities to exchange information and know-how as part of the effort to raise standards overall. There is also scope for further action at the Community level in dealing with urban problems beyond those of an economic nature currently addressed, in certain cities, under the Structural Funds.

About 80% of the population of the Community live in towns and cities (Graph 20)¹. These vary enormously in their size (Map 23), economic characteristics and social structure and conditions. They have a range of different fiscal regimes and political and administrative powers.

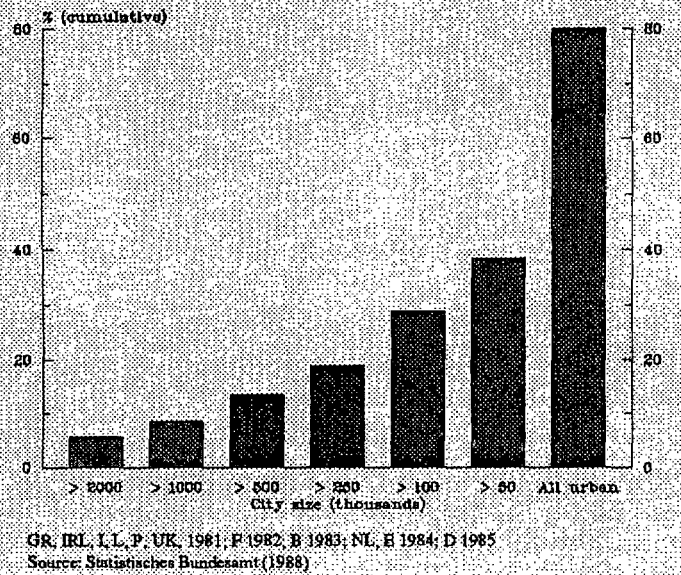
Within towns and cities, there are often considerable disparities in the quality of life of different social and ethnic groups and a variety of problems linked to transport, land prices, housing, infrastructure, economic development and the environment. These constrain the ability of many urban areas

to play a full role in the development of an economically and socially balanced Community.

Urban trends

In the three decades up to the mid-1980s the large urban

20 Urban population in the EC by city size in the 1980s



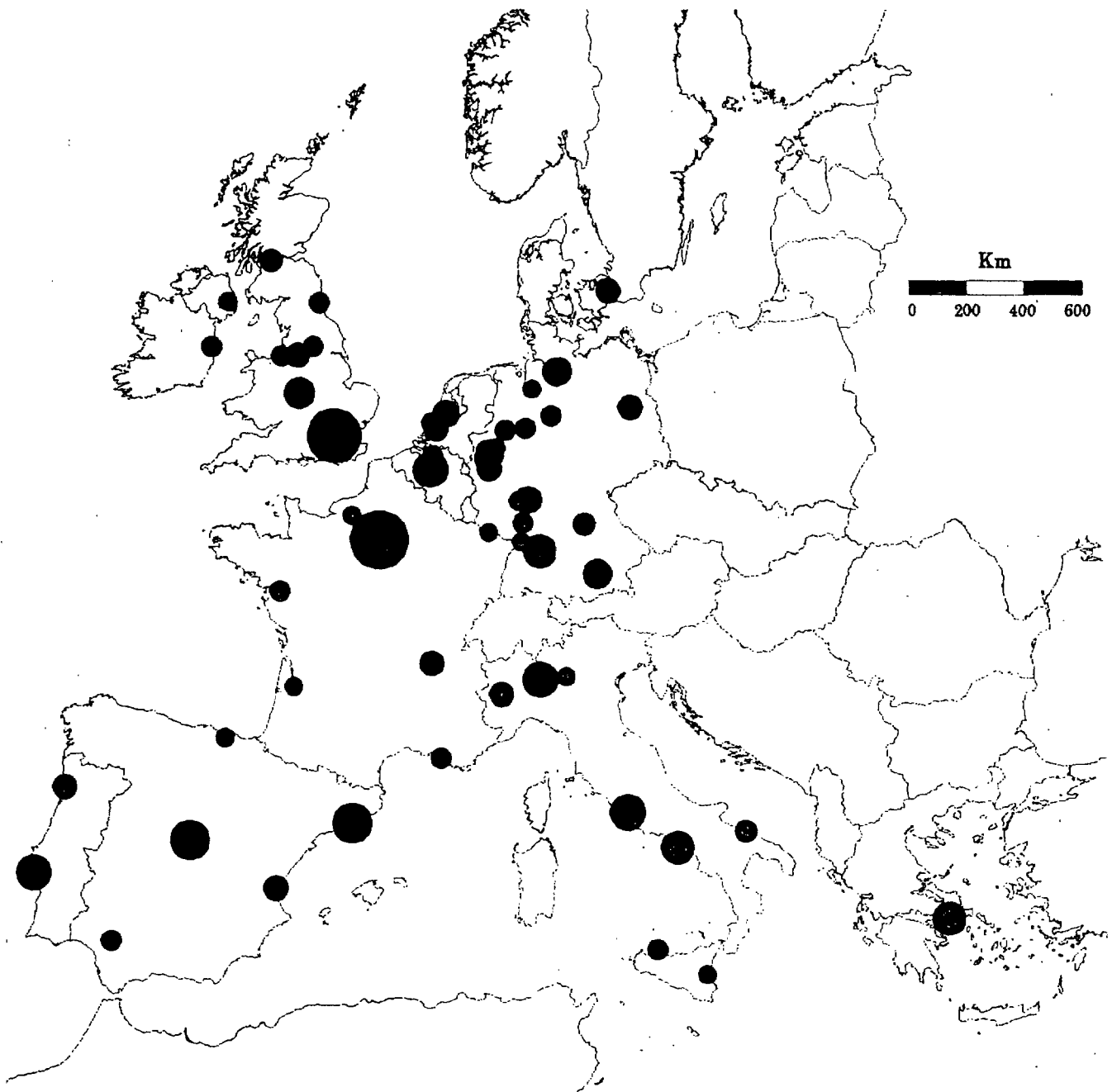
areas of northern Europe experienced a common cycle of growth and decline in the form of concentration of population in the core of metropolitan areas (urbanization), followed by geographical expansion and dispersion of population towards the outer areas (suburbanization) and finally, in many cases, by population loss (de-urbanization).

De-urbanization occurred when the metropolitan area as a whole lost population to smaller urban areas, tending to create a more balanced urban system in many Member States. By the end of the 1960s, the centres of many larger northern cities had reached the end of their growth period. In part, these developments were the result of a decline in traditional manufacturing, but these trends were also reinforced by national policies to promote a more balanced geographical distribution of economic activity and population. In most of the major cities of northern Europe, a complete cycle of growth and decline had taken effect by the beginning of the 1980s, though there were certain exceptions such as Dublin where population grew continuously.

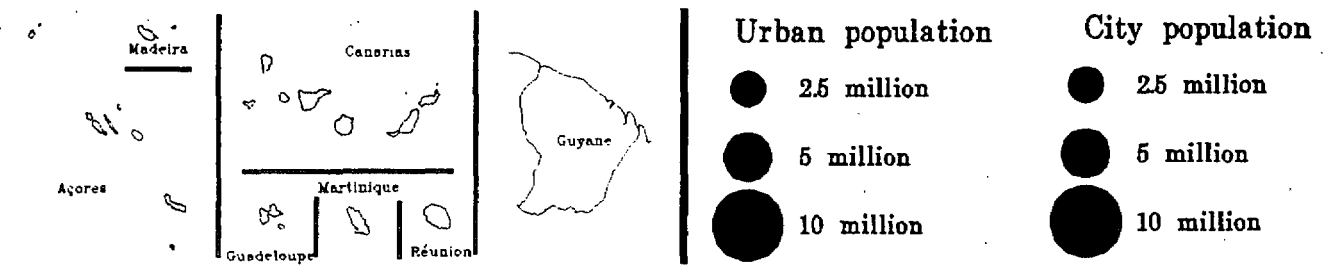
City size — definitional problems

In many cases, administrative boundaries no longer reflect the real size of a city. This also contributes to the difficulty in making Community wide comparisons. For instance, the city of Paris has a population of just 2 million, whereas the inclusion of the Ile-de-France gives it 9 million. Similarly, the city of Barcelona has a population of about 1.7 million but the metropolitan area has over 3 million, while Athens is a city of 800,000 with a metropolitan area of 3.5 million. These differences have had important consequences for city management, the coordination of services and policies and the relationship between cities and their surrounding regions.

Functional urban regions with more than one million population



Source : IRPUD



Immigrant populations

40% of France's immigrant population lives in Paris. The majority of the remainder live in Marseille or Lyon.

In the Netherlands 60% of immigrants live in the four largest cities. In Rotterdam, the Surinam and Mediterranean population represents 11.8% of population but 30% of the unemployed.

Frankfurt has a foreign population of 22.6%.

In Birmingham which has the highest ethnic minority population in the UK (20%) the average unemployment amongst coloured people in 1986 was 32% compared with 13% for whites.

Since the mid-1980s some of the older metropolitan areas in the North have experienced a significant economic resurgence. Two processes are at work. On the one hand, there is continued decentralization from the older metropolitan cores in some sectors of lower level economic activity (eg routine back-office functions such as typing, coding, accounts processing, etc). On the other hand, there is a process of reconcentration of higher level economic activities within the older city centres. As a part of this latter trend and strengthened by urban revitalization policies introduced in some

Member States, a number of large cities, particularly in France, Germany and the Netherlands are now showing population increases for the first time since their decline in the 1970s² (Map 24). This is often accompanied by 'gentrification' (inflow of relatively wealthy and mobile new residents) and related environmental improvements.

While these changes have been going on in northern Europe, rural to urban migration combined with high birth rates continued to produce rapid population growth in southern cities throughout the 1960s and

1970s. In a European perspective, there was therefore a clear difference between a declining urban North and rapid expansion of southern cities. In the 1980s growth of southern city centres slowed down but suburbanization was still growing. Despite decreasing rural migration and fertility rates the large southern cities are not losing population, but there is evidence of the smaller cities now growing at a faster rate.

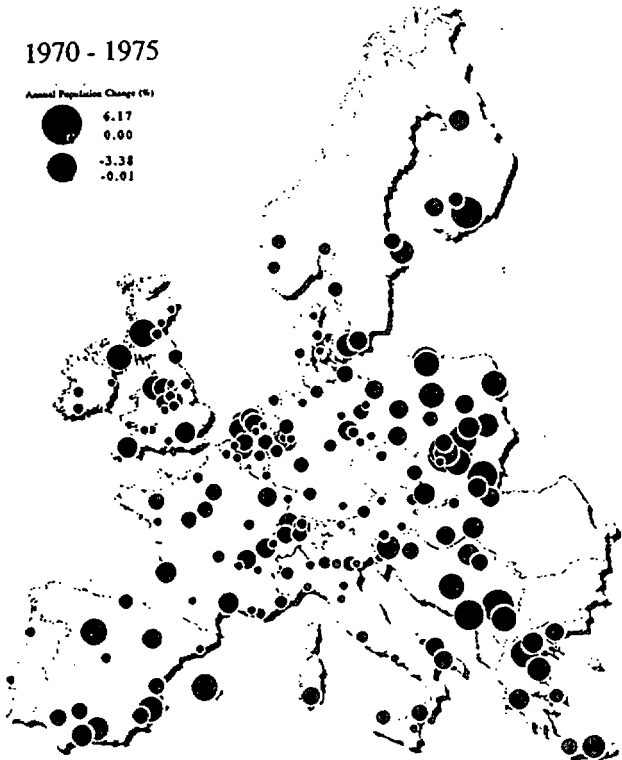
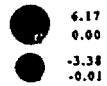
For example, the average annual change in population in the central city of Madrid (0.4%), Barcelona (-0.7%) and Lisbon (-0.4%) was relatively small between 1981 and 1986, while many smaller cities in the South showed more significant annual increases, such as Malaga (3.6%), Murcia (1.3%), La Coruna (0.8%), Leon (0.9%) or Coimbra (1.3%). In Greece between 1971 and 1981, the annual increase in Athens (1.8%) was smaller than that in Thessalonica (2.4%), Patras (2.5%), Larissa (3.5%) and Kavala (2.0%). In France, between 1982 and 1990, Toulouse (1.5%), Montpellier (0.9%), Bordeaux (0.8%) and Toulon

21.

Evolution of European Cities, 1970 - 1990

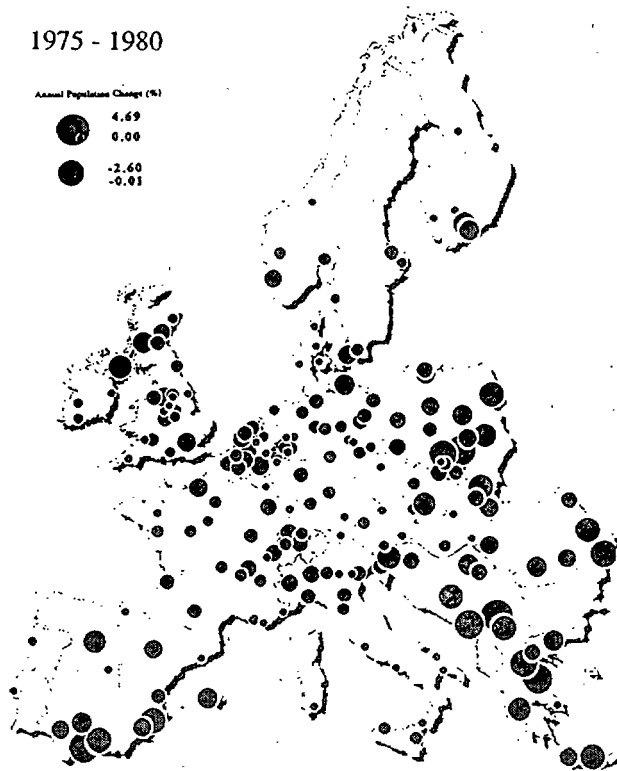
1970 - 1975

Annual Population Change (%)



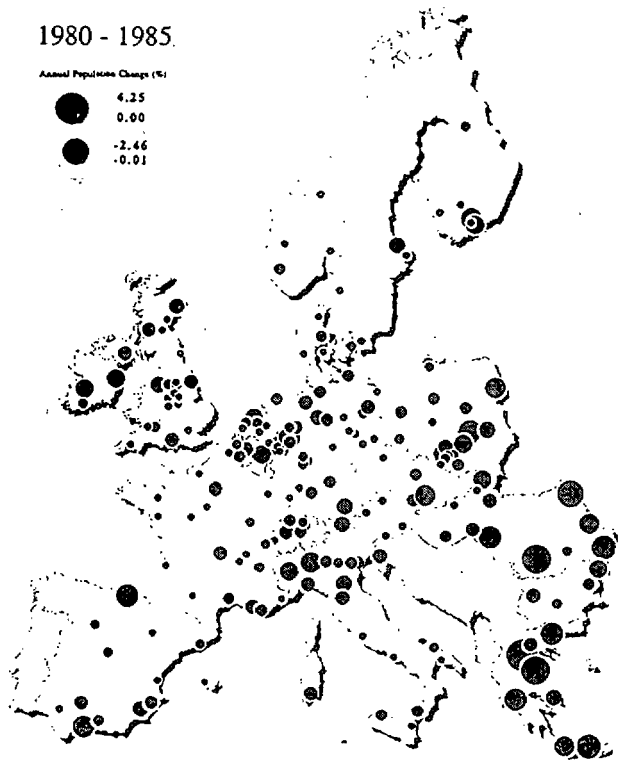
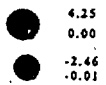
1975 - 1980

Annual Population Change (%)



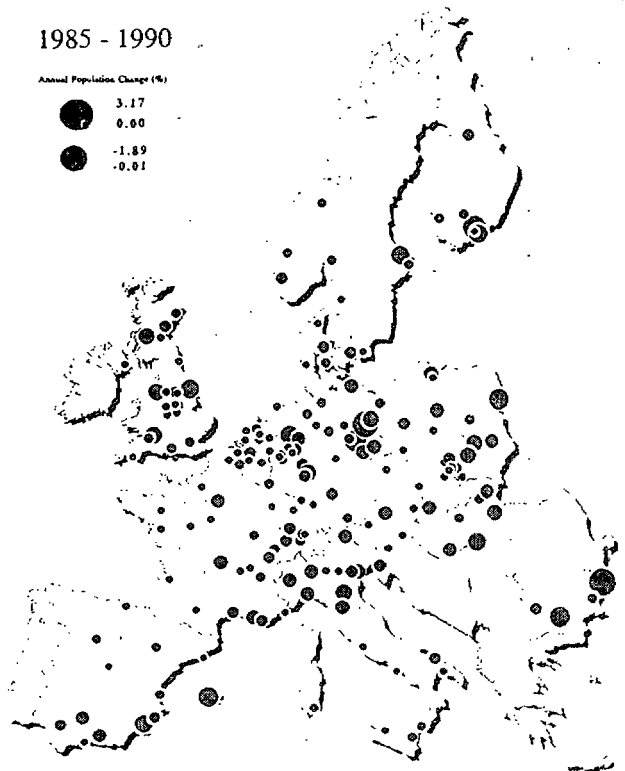
1980 - 1985

Annual Population Change (%)



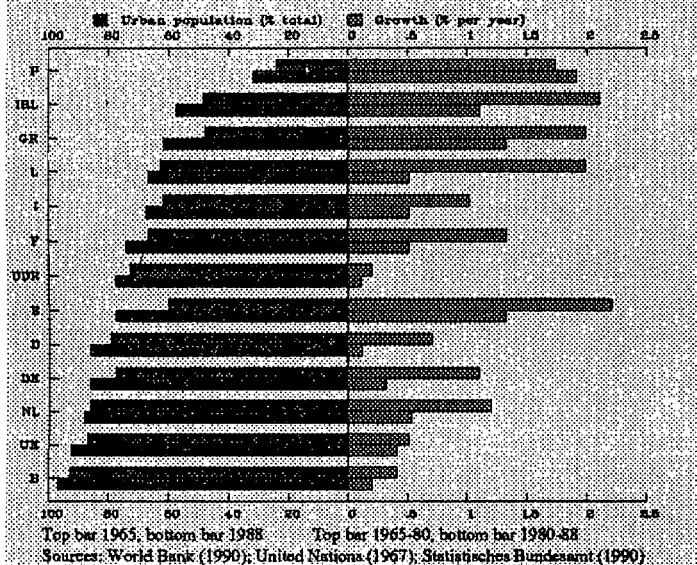
1985 - 1990

Annual Population Change (%)



Prepared by the London School of Economics for Urbino Network 1991 FAST Programme Prospective Dossier No. 4

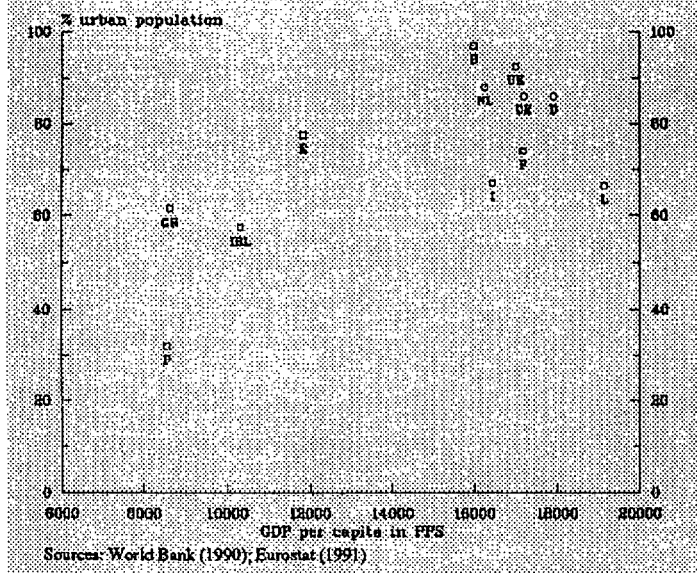
21 Degree of urbanization and urban growth, 1965-88



(0.7%) had greater rates of increase than Paris (0.5%) or Lyon (0.4%).

The net result of the various processes is that the overall percentage of urban population increased in all Member States between 1965 and 1988, especially in Portugal, Spain and Greece in the 1980s (Graph 21). Nevertheless, the proportion of people living in urban areas in the less developed countries remained in most cases below that in other parts of the Community (Graph 22).

22 Urbanization and economic development, 1988



A common element in the North and South is the development of a more decentralized urban system as the large metropolitan areas either grow more slowly or lose population. The rapid growth of small and medium-sized cities especially in the more prosperous regions — with good connections and/or proximity to large metropolitan areas — reflects their advantage in offering skilled workers a good location, easier communication and shorter travelling distances and a cleaner and less congested environment.

A further effect of the urban trends was that during the

1980s the traditional view of the European economy as divided into a single dominant core and a weak periphery began to be challenged. First, in the mid-1970s many northern cities based on traditional industries of coal, steel, shipbuilding and textiles went into decline. At the same time, a new mid-southern European belt of cities running from North-East Spain through South-East France, southern Germany to northern Italy embarked on a period of economic growth.

Other cities continue to be constrained by a peripheral location and/or an economic base composed predominantly of traditional industries. Many cities regardless of their geographical position demonstrate economic success and potential, including some cities in the periphery. Thus, although location and size remain important, the functions cities perform and their adaptability to change appear to be more significant determinants of development potential.

The broad processes of urban change and development described above have had far-reaching implications for those living in Europe's cities. In particular,

many social groups and areas in cities have not shared the benefits of economic growth. Poverty, inequality and social deprivation have become major urban issues.

Many cities contain areas of severe poverty with an attendant lack of economic opportunities. These are found in inner city locations but also in peripheral housing estates and satellite communities near the major conurbations. In many cases, the problems centre around the long-term unemployed, often comprising ethnic minorities who have moved from peripheral areas of Africa, Asia and eastern and southern Europe in search of jobs.

In 1990, there are estimated to be 16 million migrants and refugees (including family members born in the Community) in the Twelve. Most are located in the large cities where they arrived in search of jobs. Larger than average ethnic minority settlement in cities has tended to become self-reinforcing as new generations are born and new immigrants arrive and settle near their family or friends from their country of origin (see Box: Immigrant populations).

In the 1980s in France, Belgium and the UK, unemployment in urban centres was considerably above the national average in each case. In the inner city and peripheral housing estates the figure was often very much higher, in some areas exceeding 50%. In the southern cities, overall unemployment rates were closer to 20%. In some Spanish cities the rate was higher, and though lower rates obtained in Greek and Portuguese cities, the estimates are distorted by under-employment. Many of the housing problems of European cities are in the older parts of inner city areas with some houses lacking basic amenities. The difficulties are not solely related to the age of the housing stock. Indeed, some cities have rehabilitated run-down housing, though often at the expense of disadvantaged groups forced to move elsewhere. Some of the worst problems occur in the peripheral housing estates built in the 1960s and 1970s to tackle overcrowding and poor conditions in the inner city areas. Many blocks of apartments built to last well into the next century will be outdated before the year 2000. Often the building of apart-

ment blocks was not followed by adequate services (shops and transport) or job opportunities for local people. In many cases the result has been simply to transfer the problems or even add to them. In industrially declining areas in particular, people were transferred to new housing areas but, crucially, not to jobs.

In the South, lack of planning and rapid growth led to unplanned urban sprawl as cities grew rapidly, but often without adequate infrastructure in the form of sewers, water supply and housing for migrants. In the North, although there was more planning to control urban sprawl, the decline of traditional manufacturing industries has left a legacy of derelict industrial land and, in many cases, an outworn infrastructure in need of renewal.

The trends in suburbanization have increased commuting by private car and so intensified and extended air pollution, traffic congestion and noise within the major conurbations. A better road system may provide a partial answer for some cities but for many providing more space for cars could be environmentally damaging

and too costly. For most cities, the best option will be to develop better connections between train, bus and car and better provision for cycles and pedestrians as well as better general spatial coordination of workplaces and residences.

The combination of air pollution from industry, transport and burning of fossil fuels for heating or electricity generation produces unacceptably high levels of carbon monoxide/dioxide, sulphur dioxide and nitrogen oxide, with the greatest concentrations in cities. Other major pollution problems in urban areas are related to noise arising from traffic or economic activity. In cities such as Athens and Naples, which have been the subject of rapid growth in recent years, the problems of air pollution are compounded by climatic effects which concentrate and hold air pollution in the city.

The future pattern

Population and economy

During the 1990s, the overall urban map of Europe is not

likely to change dramatically. Much more rapid rates of urban population growth will occur outside Europe. Although in 1980, Paris and London were still among the 15 largest cities in the world, estimates suggest that in the year 2000 none of the largest 20 cities in the world will be in Europe. Inside the Community the major changes in demography and internal migration appear already to have taken place. The principal population pressures on Community cities will tend to come from outside. The changes in Central and Eastern Europe will increase the importance of Berlin, Vienna and the cities on the East/West border. Rural to urban migration will no longer be a major issue in northern Europe. In southern Europe, it is unlikely to result in massive movement to the larger conurbations as in the past. For example, current trends in Greece are for migration to be directed to the smaller cities.

While the overall pattern of urban Europe may not change radically, there could be considerable changes within some cities as new functions require space for economic activity (eg more offices or business

premises) or respond to current trends (eg out of town retailing centres with adjacent leisure facilities). This could give rise to continuing conflict over the use of land with high land prices often making the problem of striking a balance between the needs of industry, commerce and the residential population more difficult. Refurbishment and conversion are increasingly frequent solutions to providing more space for businesses and housing. These together with environmental pressures may also have the desirable effect of acting as a brake to further urban sprawl. Even so, the legacy of uncontrolled expansion in the past, especially in the South, will need to be addressed.

The growth of cities in terms of size and function has largely occurred as a result of socio-economic developments. Present developments include the ongoing transition from manufacturing to a service economy, the completion of the single market through the removal of internal frontiers, the development of telecommunications and high-speed transport networks. These developments may be accompanied by in-

creased competition between cities to attract investment, together with changes in the functions they perform.

Although the cities of Europe are often thought of in hierarchical terms, there is no single hierarchy. Rather there are a number of overlapping hierarchies in respect of different economic activities — high tech industries, financial services, transport, distribution, cultural activities, research and so on. Each city is in competition with others in their areas of economic interest. Such competition is likely to increase rather than diminish although there may be scope for cities to develop complementary relations.

At present, Paris and London are, in population terms, the only two world ranking cities in Western Europe. It seems likely that they will soon be joined by Berlin. They are followed by a number of cities — or conurbations (eg Ruhr in Germany and Randstad in the Netherlands) — of European importance including most of the capitals of Member States as well as other cities of over 1 million. Several levels of cities

follow which serve as development, service or retail centres of national, regional or local importance.

In the future, it is possible that a rather more varied pattern may develop with cities of all sizes throughout the Community, not just the largest, playing a part in reshaping the European urban system.

As economic activities develop and change so will the relative position of individual cities. For example, in financial services, although the role of London as a leading world centre is unlikely to be challenged in the next 10 years, there are a number of other cities such as Dublin, Brussels, Copenhagen, Luxembourg, Edinburgh, Lisbon and Athens attempting to develop financial services which may take away business from the established centres in cities such as London, Frankfurt, Paris and Amsterdam especially in certain specialist markets. Monetary union will accelerate competition between these centres to serve European-wide markets, which might affect medium-sized cities providing financial services to national or regional markets.

Large metropolitan regions in the centre of Europe (London, Paris, Randstad and the Ruhr) are likely to retain their predominance as leading control centres in the global economy together with the conurbations of Hamburg, Frankfurt, Munich, Barcelona, Lyon, Madrid and Milan. Backed by international airports, modernized road, rail and waterway networks and advanced telecommunication systems, these continue to be magnets for international companies, producer services and transport interests.

The experience of Bari, Valencia, Oporto, Rennes and Glasgow demonstrates that there is potential for economic and social success for cities away from the centre of Europe. Dublin and Seville are prominent examples of peripheral cities which have launched successful initiatives to improve communications and implement new information and production technologies. Nevertheless, the disparities in economic strength between central and peripheral cities remains an important issue.

Many medium-sized cities appear to have promising

futures, especially those near large metropolitan areas (eg Reading, Aix-en-Provence and Beauvais), towns with significant indigenous resources (eg Oxford, Freiburg and Aarhus) and towns near major transport routes (eg Augsburg, Amstelveen and Swindon). New economic opportunities, unconnected with agriculture or forestry, may arise for towns in rural areas if decentralization from major centres continues. Support from local development agencies and positive use of planning instruments can provide the means to maximize these new opportunities. On the other hand, some smaller towns, especially those dependent on vulnerable economic sectors or declining industries (eg textiles and armaments), or garrison towns could face increasing difficulties.

Different Development Scenarios — some examples

Rennes, Cambridge, Montpellier and Sophia Antipolis are examples of small and medium-sized cities which have developed rapidly around high technology sec-

tors without having to restructure traditional industries. The experience of Seville illustrates the potential of strategic initiatives aimed at propagating technological innovations and establishing R&D functions throughout the surrounding region. Similar strategies could be promoted in other relatively underdeveloped regions — Bari in the South of Italy, for instance — endowed with technology parks and high-tech centres.

Whereas the economies of urban areas in peripheral Europe are likely to be hit hardest by the increased competition created by the single market, cities at the inner-Community borders may benefit especially from its completion (eg Strasbourg, Nice, Arnheim, Liège, Maastricht, Heerlen and Aachen). They are expected to expand their hinterland and increase their trade functions, if local decision-makers take up the challenge. Improved institutional and administrative cross-border arrangements and better land-use planning will be needed to exploit development potential. There may be scope for new public and private sector development and social services

ventures (eg hospitals) on either side of the border, although as yet the means of financing public services across frontiers have not been developed. Some border cities may, however, suffer from the loss of their traditional role as centres for customs administrations giving them a challenge to diversify.

Changes in Central and Eastern Europe will in the long run re-establish traditional links to East European markets benefiting, for example, Copenhagen, Hamburg and Thessalonica. Berlin will advance rapidly from being an isolated city to a global one. The unification of Germany will progressively remove the constraint imposed by the East-West division and will result in German cities close to the former border (eg Hannover, Nurnberg and Braunschweig) widening their regional hinterland. If transition to a market economy occurs smoothly, cities in eastern Germany will offer potential for economic growth and expansion.

Port cities have in some cases had difficulty adjusting to change. Liverpool and Marseille are cases in point. The

success of Rotterdam, Hamburg and Valencia demonstrates that it is the role which the port plays in the national and international market and the size and orientation of the hinterland which determine success. Unless traditional port cities succeed in improving their transport connections to their hinterlands, in upgrading their infrastructure, in specializing in certain activities and in adapting their labour force they are likely to lose their international importance. In particular, smaller ports might face difficulties because of the increased competition induced by the completion of the single market. The coming decade is expected to be in particular decisive for port cities along the Channel, following the opening of the Tunnel. A number of Greek port cities (eg Thessalonica, Volos and Kavala) might increase their importance by improved infrastructure links to an extended hinterland (Bulgaria, Yugoslavia and the Middle East).

Opportunities will arise for towns and cities on high-speed transportation networks (air/rail). Lille and Cologne are particularly well placed as nodal points on the TGV network to take advantage of a reduction in travelling times,

whereas the economic development of many small and medium-sized cities not on high-speed routes could well be retarded.

The cultural heritage of many European cities is a marketable asset. Furthermore, there are significant new trends in tourism and leisure with more short break holidays particularly to city destinations. Investment in tourist infrastructure, eg hotels and cultural and leisure attractions, could both generate increased income from visitors and be linked to wider policies for improving the quality of life for citizens.

Social Infrastructure

It seems likely that in the 1990s unemployment will continue to be acute in particular inner city areas or the satellite communities on the edges of metropolitan areas which fail to develop new economic activities. A link between social problems and retarded economic development cannot be ruled out.

In the period of relatively rapid economic growth in the 1980s, differences between

Networking and Cooperation — some examples

At a general level, cities are grouping together to establish complementarities and common interests. Examples include the 'Union of Capital Cities of the EC', 'Eurocities' and the 'Commission des Villes'.

Cities are also involved in networks for cooperation on specific themes or projects.

The P.O.L.I.S. Network brings together 28 cities which wish to benefit from economies of scale in undertaking joint research. These cities are developing technological solutions to traffic management in association with the Community's DRIVE programme.

The Quartier en Crise Network brings together 10 cities in northern Europe involved in the revitalization of urban areas in decline. The network brings together policies and practices in the participating cities and provides a means for network members to adopt new and innovative ideas to their problem areas. It is being extended to include cities in southern Europe.

Cultural and scientific development projects are other good examples of cooperation. These include joint initiatives by local authorities in Rennes, Angers and Nantes to link up with other municipalities of Brittany in the formation of high-tech or agribusiness networks. Lyons' efforts to cooperate with Chambéry and Grenoble with Saint-Etienne in the Rhone Alpes regions are further examples.

An example of a regional system of networks is 'Third Italy' which covers 61 industrial districts in North-East and Central Italy. It promotes a balanced development reconciling economic efficiency with environmental protection through informal networks of craft-based small firms, banks, municipalities and service centres for local enterprises, created at the sub-regional level in small cities, which regional development and finance agencies played a key role in establishing.

The polycentric Rhine-Main area provides an example of efficient transport links with a complementary division of functions between the major city Frankfurt (finance and 'gateway' function) and Heidelberg-Darmstadt (R&D, knowledge-based industries), Offenbach-Hanau (manufacturing industry) and Mainz-Wiesbaden (politics and administration).

Current Community policies for urban areas

While the Structural Funds are not specifically targeted at urban areas, a considerable number of the problems which they are designed to tackle occur in urban areas and a significant proportion of expenditure takes place there.

The Community Support Frameworks for the less developed Objective 1 regions include action for Belfast, Dublin, Lisbon, Oporto, Athens, Palermo, Naples and Seville. In Objective 2 areas of industrial decline, action for cities such as Lille, Bremen, Birmingham and Manchester is aimed at improving the opportunities for economic development. Some other major cities are also partially eligible, including, for example, Madrid and Barcelona.

Spending on training, retraining and recruitment under Objectives 3 and 4, concerned with long-term and youth unemployment, is to a considerable extent concentrated in the major cities where these problems are often most acute.

Innovative actions in the framework of regional policy such as the launching of networks to enhance economic and technical co-operation and urban pilot projects to look at particular issues which are relevant in the wider European context e.g. London, Marseille, Rotterdam, Athens and Dublin.

Beyond the actions within the Community Support Frameworks, Community sectoral policies increasingly adopt an urban dimension:

- the Commission Green Paper on the Urban Environment (June 1990) discusses possible further action in relation to disposal of waste, air pollution, noise and a number of other environmental issues relevant to cities;
- ideas are being developed on how to integrate the unemployed, especially the young, into the mainstream of economic life in cities while the poverty programme focuses on vulnerable groups (such as single parents and migrants as well as the unemployed);
- the conservation of historic city centres is the main aim for the 1990s of the Commission's promotion of the architectural heritage of the Community;
- the promotion of energy planning schemes in certain cities;
- transport and technology programmes aimed at examining particular ways of managing urban transport systems.

rich and poor in Europe's cities appear to have widened and physical separation has become increasingly apparent. The existence of poverty in close proximity to areas of relative prosperity threatens social cohesion and the efficient and effective functioning of the cities themselves. The disadvantaged groups in such areas are often excluded from the opportunities for training and finding employment and thus a means to improve their position.

Where poor housing conditions³ are associated with high levels of unemployment this can create a lack of confidence in an area, deterring investment in businesses and services. Acute problems of homelessness — which are present in some of Europe's most prosperous cities — have similar effects, quite apart from the moral and social issues involved. These factors may also contribute to increased crime and poor health. Often the systems for providing employment, education and housing fail to meet the needs and aspirations of residents. Given the right context, however, people can be motivated to take action to overcome these problems. Throughout Europe there are examples of

urban policies being developed which recognize the need for concentration of action in certain areas and the importance of involving local groups and residents in devising new economic strategies. Future policies in this direction will require a convergence of Community, national and local action which does not attempt to impose solutions without the participation of those whom they are intended to benefit. This type of development partnership is a characteristic of Community efforts to assist economic development in the old industrial regions (Objective 2) which are typically centred in urban areas. Other, more limited actions to foster social and economic cohesion in cities, consistent with the subsidiarity principle, are the Community's pilot projects launched for London and Marseille.

These were the first in a series of such projects (launched under article 10 of the ERDF regulation). They deal primarily with economic development in housing estates which have high concentrations of minorities, severe problems of economic and social integration and high unemployment, particularly among the young.

The emphasis is in creating facilities and businesses for the people living on the estates and involves considerable local resident participation. Priority is also given to employment of people from the estates in the construction of the projects.

It is clear that new infrastructure is required in cities throughout the Community. Whereas northern cities will have to respond to the changes induced by an ageing population (greater need for homes for the elderly, less need for schools and kindergartens), the southern cities will need to make up for current deficiencies across a wider spectrum. It is in the latter cities that there is often a virtual absence of modern infrastructure while the resources for new investment are limited.

Transport and the environment

Advances in telecommunications are unlikely in the short-term to reduce the need for travel in (and between) urban areas. Indeed, the spread of urban development and decentralization of functions from the central

areas of cities may lead to more business, leisure and shopping trips. The number of private cars in the Community will continue to increase over the next ten years. The consequence will be even greater congestion as investment in infrastructure fails to keep pace and saturation points are reached. It could, for example, take as long to reach a destination from a rail station in central Paris as travelling from Brussels to Paris by TGV.

Average traffic speeds in London, Paris and many other major European cities have already fallen to only around 10 miles an hour and the average speed of lorries in the heavily urbanized northern European core is now little different from what it was when freight was carried by horse-drawn carts.

The appropriate mix of policy responses will depend on local circumstances but could include additional taxation of vehicles and/or fuel and car parking restrictions. Some examples of action taken include computerized traffic control systems which maximize flows, the introduction of light rail sys-

tems (eg Amsterdam and Rotterdam), measures to slow traffic in inner residential areas (eg Freiburg), the construction of ring roads to divert through traffic from city centres (eg Rotterdam, Edinburgh, Oporto and Valencia), policies to transfer goods traffic from road to rail and the designation of goods-only stretches of highway (eg Amsterdam and Rotterdam).

In addition to increased efficiency, better public transport provision in a city might also help reduce spatial segregation by increasing mobility for disadvantaged groups.

Cities face some important decisions in relation to the future of their environment which in turn relate to the way in which cities develop their functions and make use of space. Responses will be required in relation to transport and the mix of land-use within urban areas to meet both economic and environmental goals.

Even today, pollution from traffic and industry is so bad in Athens and Milan that restrictions have had to be imposed on the use of vehicles in city centres, while pollu-

tion in road tunnels in Brussels is many times the permitted EC level⁴.

The concentration of pollution and waste problems in cities may be the key to finding effective solutions. It is in cities that economies of scale permit the cost effective operation of public transport, district heating, solid waste disposal and water treatment. These not only improve the city environment but also serve to reduce the city's effect on the wider regional and global environment.

Financial Issues

Many of the developments referred to above imply a particular concentration of financial costs in cities arising from unemployment and congestion (affecting health, security and the urban economy), while cities often have to provide public services not only for their own inhabitants but for an entire region.

At present, the financial means to meet these costs appear to be experiencing downward pressure with city revenues tending to re-

main static or declining (in real terms) in recent years. The sustainability of the existing range of services and the ability to provide new ones are therefore in some doubt during the 1990s in many cities.

Strategic responses

Resolving the problems of Europe's cities in the coming decade will require a degree of strategic vision in order to establish a city identity, to upgrade image and to market services. Some cities are developing such strategic visions for their future development. Consensus among all the people involved is an essential precondition for their success, as is of course the availability and allocation of resources to implement them.

The key elements are:

- an ability to adapt the economic base and to seize profitable opportunities for specialization where necessary but at the same time avoiding mono-structures;

- efficient intra-urban transport and communication links to other major centres;

- a skilled work-force to develop and exploit commercial advances in high technology; this means making optimal use of the generally superior facilities in urban areas for training;

- the quality of life, in the form of cultural amenities and a healthy environment, to attract and retain qualified people who might otherwise go to rural or semi-rural areas;

- the local institutional capacity to identify an appropriate development strategy and generate the political, financial and personnel resources to implement it;

- an open attitude towards creating links with other cities in the region, country and rest of Europe.

Learning from others and working with others will contribute to finding new ideas. The Barcelona Strategic Plan for the

year 2000 is a good example of a city looking at its strategic role in its region, at a national level and in an international/cross-border context, in this case spanning the Pyrennes and the WestMediterranean.

Image

The image which a city projects to the world outside can be significant to its economic prospects and possibilities. There is no doubt that negative images are difficult to dispel but positive images can be developed.

Image does not remain constant and can be coloured by particular events. For example, riots can quickly tarnish a city's reputation. Equally, prestigious international events can provide a boost such as for Barcelona and Seville in 1992 and Italian cities during the 1990 World Cup. Other cities such as Glasgow, Lyon, Rotterdam, Charleroi and Bradford have taken conscious decisions to improve their image and are benefiting accordingly.

Cooperation and strategic alliances between cities

For many European cities, the process of internationalization and the development of spheres of influence is accompanied by a search for new forms of specialization. Urban success in the Europe of the 1990s will probably be based on a city's ability to find the right form and degree of specialization. In this context, cities will of necessity continue to compete with each other but there will also be increased scope for exchanges of experience and cooperation.

The creation of a single market will facilitate further new networks of economic and technological cooperation at the European level, offering economies

of scale and encouraging technology transfer. Cooperation between small cities at national and regional level could reinforce the strength and potential of different parts of the Community.

Networks can operate at several distinct levels: pan-European, national, regional and cross-border⁵. They can link neighbouring cities as well as distant ones and cities in the centre with others on the periphery. Equally, they may bring together cities with common economic, social, environmental or geographical characteristics. They may be based on the sharing of resources — for example, information skills, infrastructures or finance — or they may involve the pooling of efforts to take advantage of scale economies in research and, perhaps, joint purchasing.

Moreover, networks relating to specific industries might be developed, similar to those in the ceramics industry in which several cities are engaged in an initial exchange of experience, or that in the automobile industry.

Many networks have also operated for some time at the national and regional level. In Italy, France and Germany, for instance, there are long-established formal and informal urban and regional networks to promote cooperation between members and to enhance their competitive position at the European level. Networks at the regional level formulate integrated marketing strategies for the area or establish centres offering a variety of services, including advice on technology, research and development, and marketing to the local economy.

Footnotes

- 1 *The analysis and supporting data contained in this chapter are based, except where otherwise stated, on Parkinson M et al (1991), Urbanisation and the function of cities in the European Community. Study financed by the European Commission.*
- 2 *Drewett et al (1991), Revitalisation of European cities, international comparative perspectives, Prospective Dossier n° 4, FAST MONITOR programme. Study financed by the European Commission.*
- 3 *The European Foundation for the improvement of Living and Working Conditions (1986), Living conditions in urban areas. Shankill Press.*
- 4 *Commission of the European Communities (ed.) (1991), Green paper on the urban environment.*
- 5 *FERE Consultants (1991), The international development of intermediary size cities in Europe: Strategies and networks. Study financed by the European Commission.*

The Future of Rural Areas

Slow but steady population decline has been the traditional experience of the Community's rural regions. Today migration between regions has slowed almost to a halt (except in the case of Ireland) although the drift to towns within regions continues. Community agricultural policy is currently being reoriented towards less intensive production and preserving family farms and the rural environment. New opportunities outside agriculture, both full-time and part-time, are also required. The development of modern telecommunications and transport links is necessary to increase the attractiveness of rural areas as locations for businesses and employment. Cultural, conservation and environmental services need to be fully integrated into rural development policy.

Over 80% of the Community's land area is rural, containing 10–20% of its population (or up to 50% if rural towns are included), including the 7% who work in agriculture¹.

Rural areas are characterized by considerable diversity. Even at a very broad level, there are major distinctions to be made. The European Commission has suggested a division of rural areas into three types²:

- those under pressure from modern development, near to or easily

accessible from large conurbations;

- those in decline whose survival is threatened;
- remote and isolated areas which are depopulated (especially mountain regions and small islands).

As this implies, there is a distinction to be made between, on the one hand, the more prosperous regions, where the economy is diversifying and population is growing and, on the other, the economically weaker regions, which are home to the rural poor, more

vulnerable, very dependent on traditional agriculture and experiencing outward migration. It is above all the degree of peripherality and sparseness of population which are the overriding factors determining the development potential of rural areas.

The majority of rural areas tend to be relatively disadvantaged in terms of material standards of living, employment opportunities and social amenities. It is therefore important that the future of rural areas be seen not just in terms of developments in agriculture, but in

terms of their whole social and economic fabric.

The changing position of agriculture

A number of indicators attest to the declining share of agriculture in overall economic activity:

- in 1960, 21% of the total Community workforce was employed in agriculture. By 1970, this had declined to 13% and by

1989 to under 7% (or 8% if forestry and fishing are included) (Map 25);

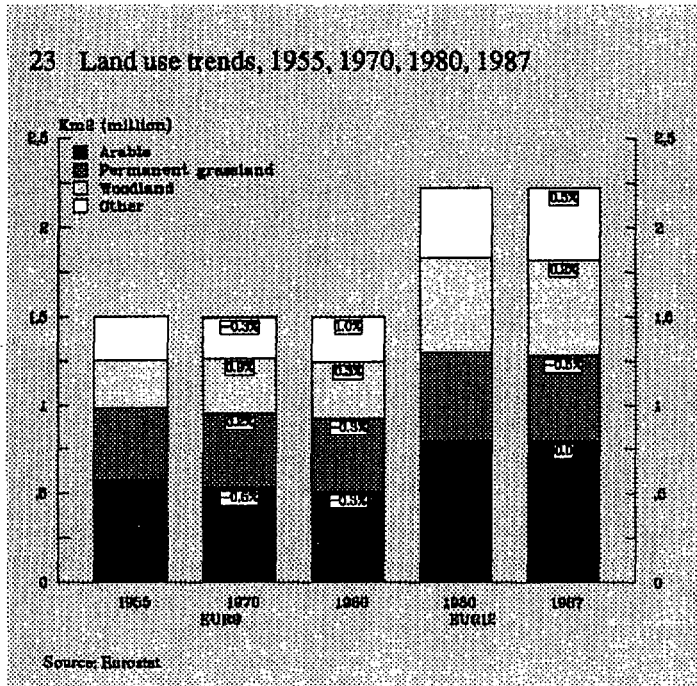
- agricultural output as a share of total Community GDP has fallen continuously from over 4% in 1980 to 3% in 1988 (Map 26);
- 800 thousand holdings (or 10%) disappeared between 1970 and 1987, while the size of farm increased though at significantly different rates as between Member States;
- agricultural area in use decreased slightly from

129 to 127.4 million hectares between 1977 and 1989.

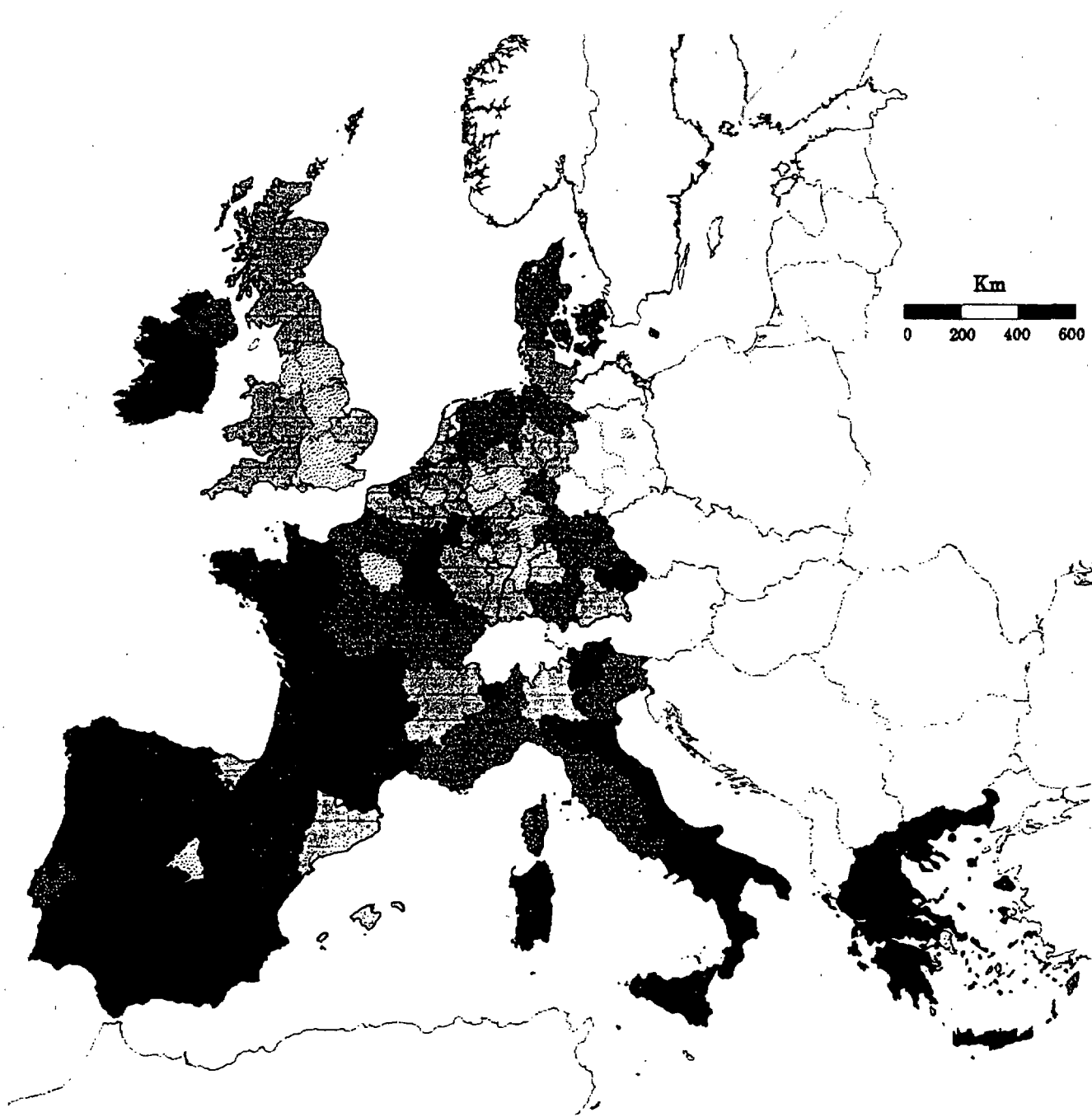
The decline in agricultural land occurred in almost all countries, but especially in Italy and the Benelux countries (Graph 23). In contrast the amount of woodland increased over this period.

The less favoured the region, the greater is the importance of agriculture in the social and economic structure. More than half of all those employed in agriculture are employed in 44 regions where agriculture accounts for more than 13% of employment. Most of these regions are located at the periphery of the Community and many are in the Mediterranean. On present trends, by the year 2000, an estimated 75% of the Community's agricultural population will be in the Mediterranean regions³.

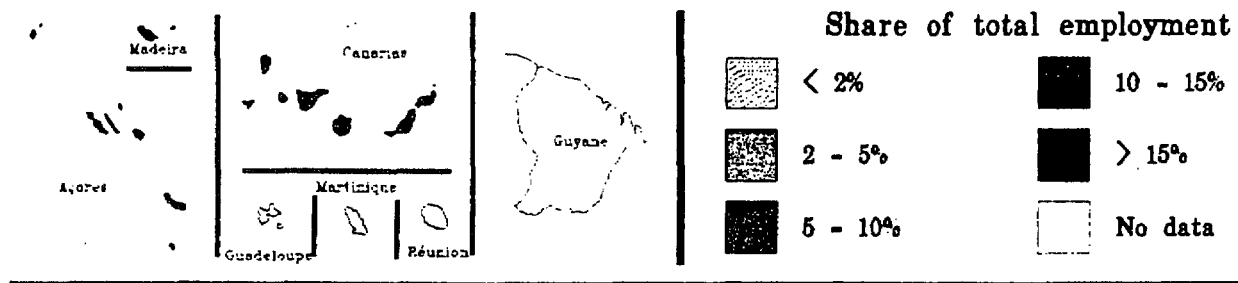
Farming intensity (value of production per operational unit) varies from about 6,500 ECU per hectare in the Netherlands to less than 1,000 ECU per hectare in Ireland and areas of Spain and France. There are equally large variations in the average size of farm (4



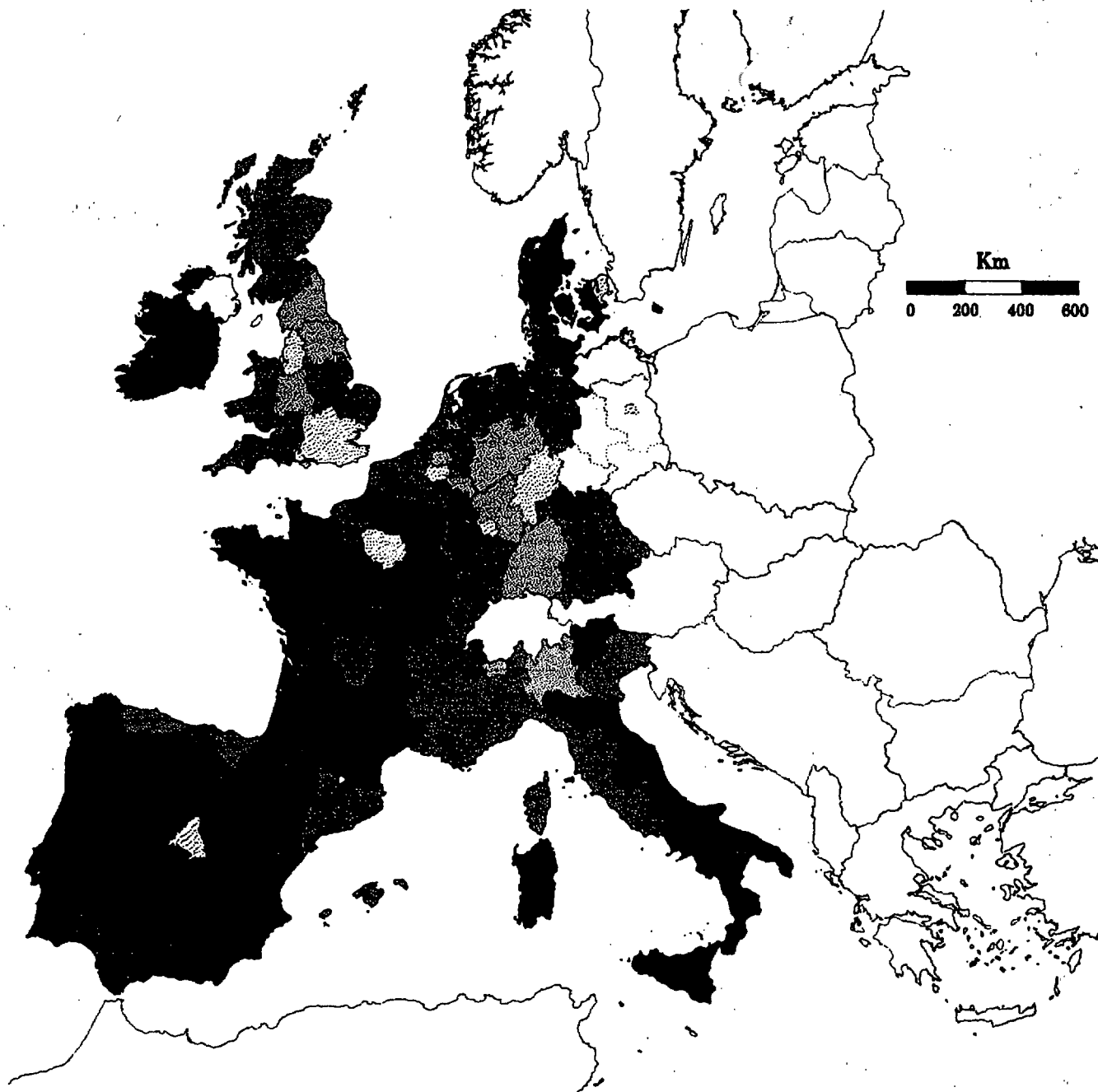
The importance of agriculture in employment, 1989



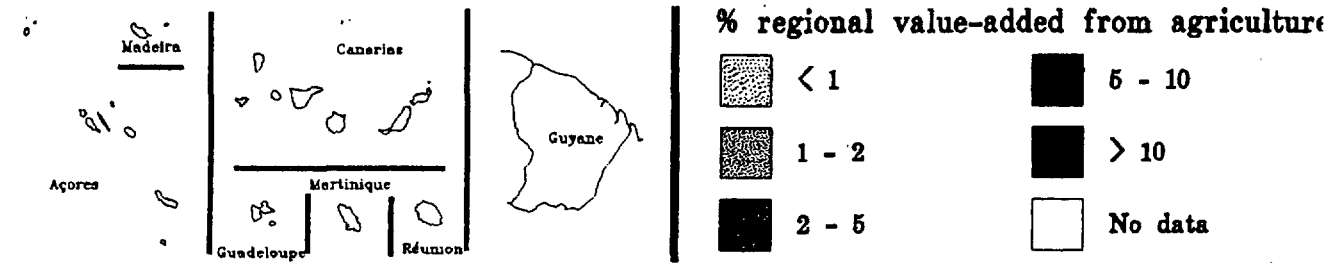
Source : Eurostat - REGIO databas



The contribution of the agricultural sector to the regional economy, 1987/8



Source : Eurostat - REGIO databases



hectares in Greece, 65 hectare in the UK) productivity and types of agriculture.

While agricultural activity helps to preserve the environment and landscape in general, intensive farming has a number of environmental side-effects. The growth of the intensive sector — pigs and poultry — has greatly increased farming wastes, especially in the Netherlands and Belgium where the pig population increased by 252% and 190%, respectively, in the 1960s and 1970s against 62% for the Community as a whole.

Variations in farming activity and intensity are reflected in the pattern of Community support, 80% of which at present (under the EAGGF) goes to only 20% of farms, though these account for the major part of agricultural land use.

Although agriculture is considerably less important in employment terms than it was, it still accounts for around 57% of land use in the Community. It therefore continues to be the major influence on rural life, and agricultural development will greatly affect the future of rural areas.

The future trends in agriculture and rural areas in the Community appear to be on the threshold of a new era. The Common Agricultural Policy (CAP) is entering a new phase largely because of the growing imbalance between supply and demand. With the supply of agricultural products outstripping domestic consumption, large surpluses have been created. Despite a restrictive price policy and measures to control supply since the mid-1980s, agricultural production is still increasing by 2% a year. At the same time, consumption has been restrained by a number of factors including the effects of stagnating population, changes in consumer tastes and preferences (less meat consumption) and disease (eg BSE in cattle).

Without appropriate measures, the mismatch of supply and demand will persist and may be exacerbated with the opening up of Community markets to Central and Eastern European Countries and also agreements under GATT. Estimates put the amount of agricultural land which is surplus to requirements at some 10 million hectares⁴.

While possibilities for creating new markets for agricultural production by turning to non-food products (such as biomass which can be used for energy purposes) are being examined and tested, and schemes have been introduced to limit production intensity, it is inevitable that land will be taken out of production especially in areas of cereal farming.

New opportunities exist through the development of alternative uses — such as forestry, nature and landscape management or tourism and recreation. Special attention will also need to be given to environmental protection, especially to new methods of agricultural production which are non-polluting and ecologically sustainable.

The future of farming and its role in rural areas

Even in those areas where its contribution to employment and income has declined to below 10%, agriculture remains significant for settlement patterns, social and cultural life and

the environment. For this reason, policies at both national and Community level have emphasized the importance of retaining a sufficient number of farm families in rural areas, especially on the periphery where there are few alternative sources of employment.

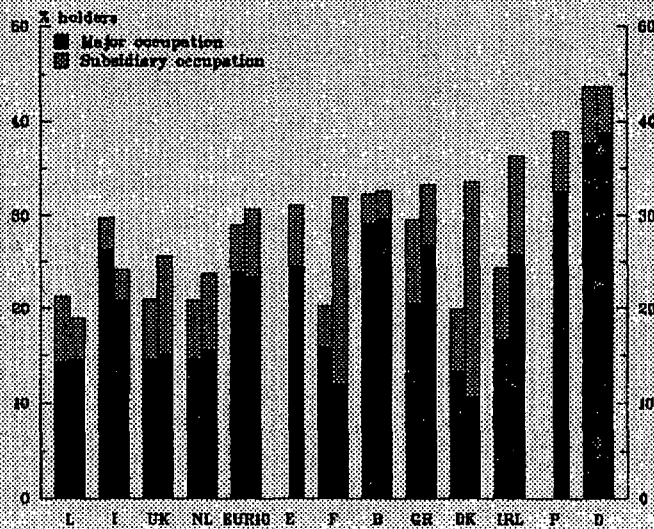
Yet market and policy pressures are combining with rising expectations to cause continuing structural changes. In some cases, this has resulted in an ongoing process of farm amalgamation and enlargement, leading to progressively fewer and larger farms, and the type of open rural landscape typical of much of the UK or northern France. In other cases, there has been increasing off-farm working by farmers and/or of their families, leading to a slower process of enlargement and a generally smaller size of farm and the kind of rural landscape seen in much of Italy and other parts of southern Europe, the Scottish islands, the West of Ireland and Bavaria.

According to a recent research study⁵, the attitudes, and responses, adopted by farming families in the face

of continuing competitive pressures take three forms: first, there are the so-called 'professionalizers' who attempt to increase their scale of production; secondly, there are the 'disengagers', often young inheritors of farms lacking in capital or older farmers pulling out of farming for reasons of retirement or to pursue 'hobby farming' or alternative activities; thirdly, there are the stable producers who tend to have smaller farms at the outset and are already undertaking off-farm activities (Graph 24).

The greatest changes will occur in areas where there are large numbers of farmers likely to disengage from farming, where succession is uncertain and farmers tend to be older than average and have smaller farms. When development takes place, farms may be acquired by larger professionalizing farmers, forestry interests or the public sector (eg for nature conservation). Alternatively, they may be abandoned, especially where production conditions are poor (such as in mountain areas) and farms are isolated. In

24 Farmers with alternative employment in the Member States, 1987



Source: Eurostat

such areas, the general conditions for rural development are often unfavourable.

Of the sample of farms included in the study nearly 30% were vulnerable or very vulnerable, a high proportion being operated by elderly farmers, many without natural successors. These were especially prevalent in Greece, Ireland, Portugal and Spain (Graph 25).

Many of these farms will not survive to another generation and will disappear

before the year 2000. Land will be abandoned or turned into forest.

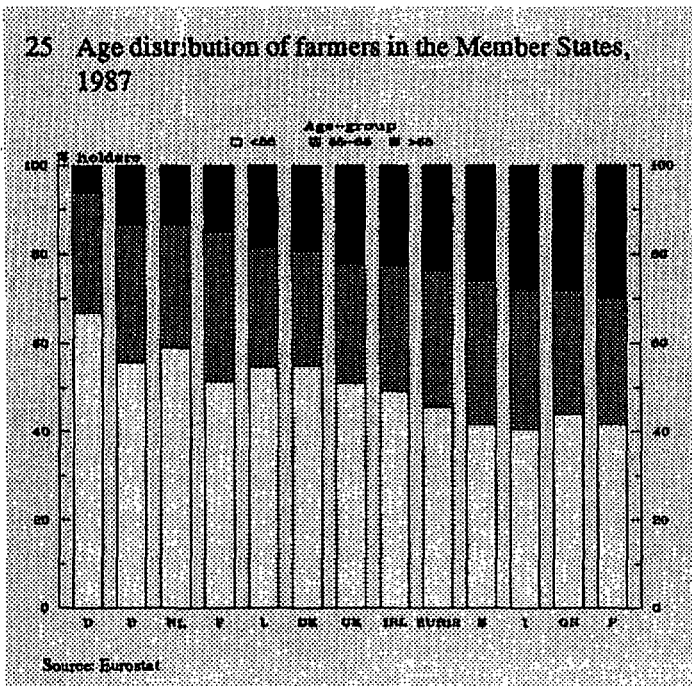
Demographic aspects

Demographic trends in regions which are largely rural in character are broadly in line at present with those in the Community as a whole. Rates of population growth have declined during the 1980s, accompanied by an ageing of population. During the 1990s, population will begin to decline in many rural regions, notable

exceptions being parts of Ireland and southern Europe.

In the past, especially in the 1960s and 1970s, migratory flows tended to result in steady depopulation of rural regions. More recent evidence indicates a more complicated pattern. In France, young people entering the labour market for the first time (15-20 years old) tend to migrate from rural regions to regions with the more dynamic labour markets such as Paris and, to a lesser extent, to Rhône-Côte d'Azur and Alsace. At around 30 years of age, there is some return migration to native regions where professional and family circumstances reduce future mobility.

Overall the population of working age in rural regions can be expected to decline at a similar rate to the rest of the Community. Within these regions, however, the decline is likely to be somewhat faster in remoter mountain and less densely populated areas as people migrate to larger towns and villages elsewhere in search of employment and better service and infrastructure provision.



Development of alternative opportunities

The availability of employment opportunities outside agriculture is vital for the survival of farm households.

For (mostly male) farmers themselves, the lack of appropriate qualifications means that alternative opportunities are generally of low status. Their wives may be able to find higher status jobs, for example, in the service sector. In one case study, in Euskirchen, it was found that between 1970 and 1987, the number of men employed in the service sector increased by 55% and women by 85%. Jobs in tourism are important in some regions, although many of these are part-time, seasonal and low paid and, in some cases (eg Savoie), taken to a significant extent by people from outside the region.

The incidence of off-farm working tends to decline the further a farm is from a town with a minimum level of services and the poorer the local labour market. The

The extent of diversification out of agriculture

The importance of income from non-agricultural activities for the agricultural population varies from region to region. Four types of region can be distinguished:

TYPE 1:

Central with moderate to good labour markets, good agricultural structures and relatively low dependence on agriculture. 27% of working time is on other activities which yield 16% of total income.

The main policy issues concern the control of development arising from movement of population out of nearby urban areas and pressures for housing in small towns and villages and the environment.

TYPE 2:

Intermediate location with poorer agricultural structures but good to moderate labour markets. 38% of working time is on other activities which yield 36% of total income.

Para-agricultural and other farm-based activities and non-agricultural employment are relatively important for both farming and non-farming populations.

TYPE 3:

Peripheral with good agricultural structures and moderate labour markets. 28% of working time is on other activities which yield 18% of total income.

Employment growth has taken place in a few centres, though mountain areas are still experiencing population loss. There is little development of para-agricultural or other farm-based activities. There is a tendency toward

concentration in urban centres of 10,000 inhabitants and more.

TYPE 4:

Peripheral with poor agricultural structures and poor labour markets. 34% of working time is on other activities which yield 24% of total income.

This group has a high proportion of elderly farmers and much of the work force engaged in agriculture and low quality manufacturing and service jobs. Pluriactivity is moderate to low due to lack of opportunities and the age-structure of the farming population.

Although developments in the CAP, including compensation for small farms in one form or another, may not have much effect, existing structures are so weak that they remain highly vulnerable in any likely policy scenario. The development of new enterprises and employment opportunities will be crucial in such areas and will require a major policy effort.

Figures are based on samples from the following regions:

Type 1:

Devon (UK), Picardie (FR), Maas-Waal (NL), Buckinghamshire (UK)

Type 2:

Euskirchen (DE), Savoie (FR), Friuli (I), Freyung-Grafenau (DE), Lazio (I), Languedoc (FR)

Type 3:

Catalunya (E), Grampian (UK), E. Ireland

Type 4:

Agueda (P), Asturias (E), Andalucía (E), Calabria (I), Eftiotis (GR), Korinthia (GR), W. Ireland.

lack of public transport and low car ownership tends to limit the ability of farmers and their families to find alternative employment.

Although rural areas across the Community are highly diverse in structure, many cannot provide viable alternatives to agriculture for a variety of reasons: because they are peripheral, deficient in infrastructures, or generally unattractive from the point of view of modern business investment.

In most rural areas, alternative employment opportunities tend to be concentrated in small firms, which may be more severely affected by the forces of competition released by the completion of the single market. In the period to the year 2000, most rural areas expect industrial employment to fall with increasing geographical concentration in the larger settlements with superior infrastructure. The areas where manufacturing employment is probably most at risk are generally on the periphery of the Community to the South, the West and the North, and in mountainous and other regions where population density is very low.

Rural Services

The service sector has been the source of most rural employment and income growth in recent years. In Asturias for example, while employment in agriculture fell by 46% between 1979 and 1989 and in industry by 23%, employment in services increased by 24%.

Service employment is concentrated in larger towns. In Rhône-Alpes, for instance, 63% of service businesses are in cities of more than 100 thousand. The strong increase in employment recorded in services in such regions (50% in Rhône-Alpes as against 35% for France between 1982 and 1988) has little impact on rural areas.

Services are not only important as sources of employment. They contribute in critical ways to the quality of life in rural areas (in the form of education, health, etc) as well to the growth of the rural economy (through banking, communications, and so on).

Major problems which contribute to relatively poor service provision in rural areas

include low population density, inadequate infrastructure, high costs, a lack of public transport and poor telecommunications.

As a result, existing services are increasingly drawn to larger towns and villages to achieve rationalization. Examples include the centralization of local administration, the closure of local police stations, post offices and local courts, the merging of parishes, the centralization of schools, health services and hospitals, the closure of regional railway lines, and the disappearance of grocery and other shops, pubs, cinemas and other local amenities.

In terms of the administration of services, there has been a fairly general trend in Europe away from highly centralized decision-making towards a greater involvement of cities and regions. This has not yet had a major impact at the local level. The major issue in this field is the trade-off between the need to provide adequate decentralization to ensure empowerment is meaningful and to maintain effective and efficient delivery of services.

This is particularly the case in sparsely populated rural areas where the norms of efficiency established in urban locations cannot be met. This inevitably means that costs of service provision are higher and problems of remoteness and travel costs inhibit the ability of citizens to participate in local democracy.

It is possible that enhanced telecommunications will improve access to local government information and decision-making in rural areas. This may offer scope at best for further decentralization of authority and at least for administrative decentralization through electronic access at local services level.

In many rural areas, especially peripheral ones without adequate public transport and other basic services, the people living there have to incur significant private costs to compensate. This is a particular problem in Greece and Portugal. However, advances in telecommunication offer the prospect of increased accessibility of services, even in the remotest parts of the Community.

Business and consumer services

Business services have been an important source of job growth in the Community, but in rural regions there has been a natural tendency for these to cluster in the larger towns. Although there is some scope through the use of new communications technologies to provide such services remotely (for example, using telematics) these have yet to have a measurable impact on rural employment and seem to be confined mainly to areas with good infrastructure, which are close to main markets and have relatively high educational levels. In general, the prospects for additional employment in business services up to the year 2000 will depend on the growth of other businesses to serve. Once again, with the possible exception of areas with favourable prospects for tourism, the outlook is best in those areas closer to main markets and in larger rural towns. Perhaps even more than for industrial employment such prospects will be improved if educational levels are high and living and working conditions are good.

Consumer services are another important source of rural employment. The location of such services and their associated employment, however, depend mainly on the location and density of population and relative prosperity. Tourism is an exception, since it provides services to non-residents and can therefore create local employment and incomes. In the absence of tourism, the prospects are that consumer services will cluster in the same places as other economic activities. The development of tourism is therefore highly important to the future prosperity and employment prospects of many remote rural areas.

Tourism in rural areas

At present, both the significance and the impact of tourism varies markedly between and within rural areas. In planning terms, even where policy measures and support structures are well developed, they tend to be separated from development measures for other sectors and are not integrated with programmes concerned with the environment and culture, both of

which are important for attracting tourists.

Rural tourism can have weak economic effects because of the lack of participation on the part of the local population, low wages and the marked seasonality of activity. It is sometimes insensitive to the traditional values and norms of resident rural populations.

In addition, uncontrolled development can have harmful effects on the environment and landscape. In the absence of planning, especially in relation to designation of development sites and the provision of adequate supporting infrastructure, investments in hotels, holiday homes and major services can damage natural areas, areas of importance for habitat and species conservation and ancient monuments.

Areas which suffer from poor quality services at present are unlikely to benefit greatly from the development of rural tourism until fundamental problems have been tackled, including poor transport and education and training provision. Accessibility is particularly important. This may mean that

the more peripheral areas will benefit less from rural tourism, although conversely they may be able to avoid some of the negative effects.

New technologies and transport in rural areas

New technologies should lead to improved access to local and regional administration, information and community services. For rural tourism, there are a wide range of potential applications, including databases for holiday planning and reservations. In the field of agriculture, new technology can be used to provide technical and economic decision-making models for management, improved accounting and record-keeping, access to market information and forecasts, and remote training.

Better access to producer and business services such as banking, finance, accountancy and local services, is a good example of the way improved telecommunications may benefit directly small firms in rural areas. Moreover the development of new technology, such as computer-aided de-

sign and manufacturing, potentially enables such firms to compete on more equal terms with their urban counterparts.

The areas least likely to benefit from new technologies at least in the short term are the problem regions already suffering from poor infrastructure and services. The low general level of educational attainment in these areas is a significant contributory factor here. On the other hand, the limited research evidence suggests that for the majority of intermediate rural areas there are substantial and relatively cost-effective benefits to be gained. Private firms, however, will require assistance to locate and expand there because of the traditional problems of limited local markets and high capital costs.

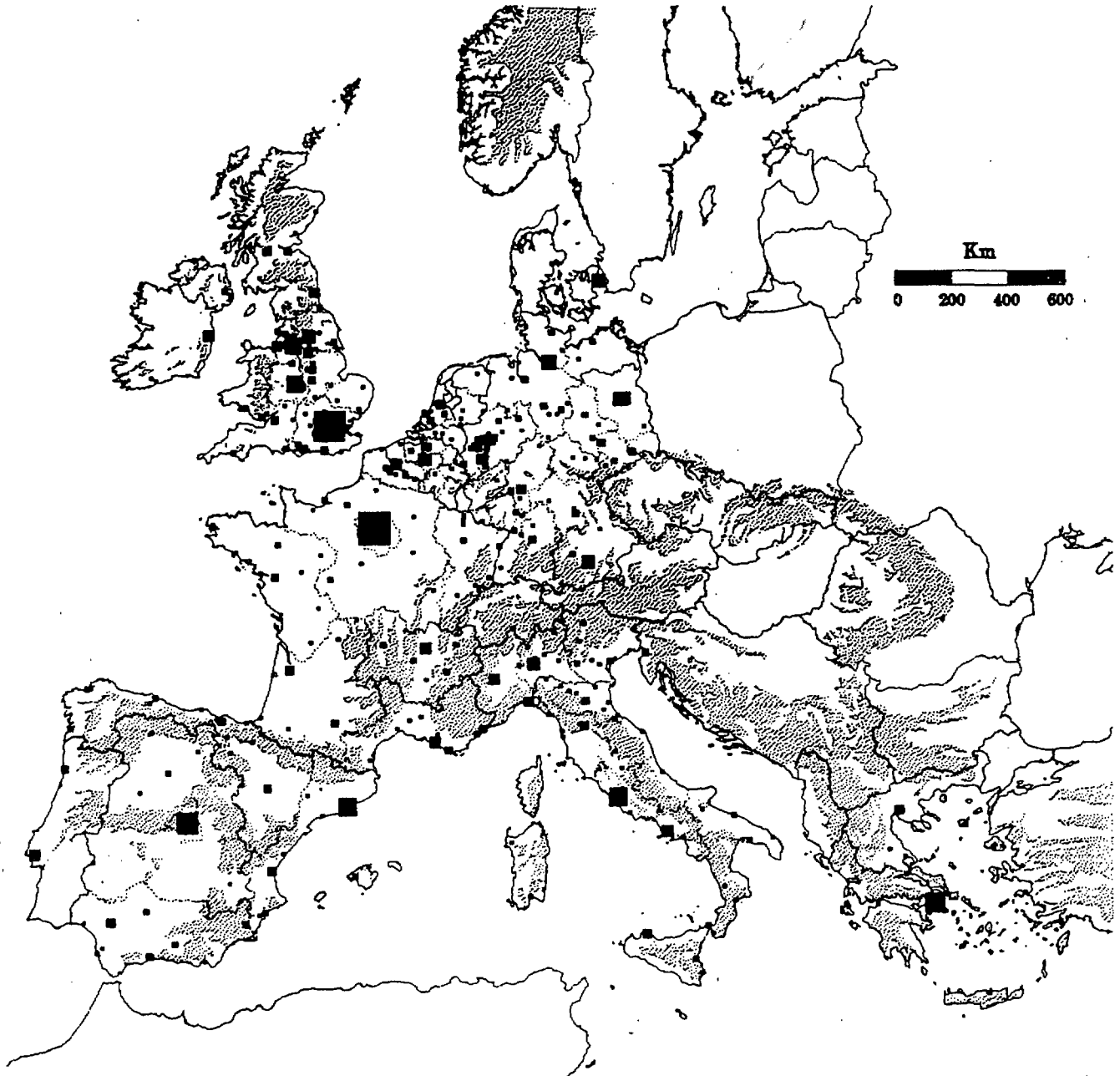
The problem of peripherality is therefore widely accepted as having an important influence on the future development of rural areas. Transport costs are only one aspect of the problem. There are additional distance costs in the form of higher costs of telecommunications and access to information. Although investment in telecommunica-

tion can markedly improve the situation of rural regions, it requires a high degree of public subsidy in the initial phases as the costs of investment are significantly higher than in more central areas.

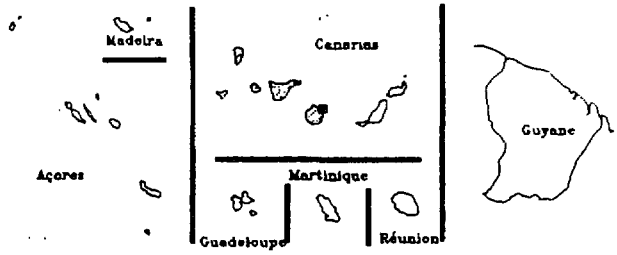
Diversification opportunities in environmental protection

Agriculture remains important in many rural areas places not just for economic reasons but also for preserving the landscape and environment. Given the increasing concern about the environment this role is likely to grow. Environmental damage which is most prevalent in intensively farmed parts of the Netherlands, Denmark, northern Germany, France and southern Britain is increasingly likely to be discouraged. In some countries attempts are made to provide incentives to reward farmers for maintaining traditional forms of agriculture, reducing farming intensity, planting trees and maintaining walls, hedges or traditional buildings in designated 'environmentally sensitive' areas.

Mountain regions and the distribution of settlements in the Community



Source : CORINE - Settlements database



Settlements with over 100,000 population

- 250 thousand
- 500 thousand
- 1 million
- 6 million

Mountain and upland areas

More than 650,000 square km of the Community, or about 28% of its territory, consists of upland and mountain areas (Map 27). Only about 25 million people, or 7.5% of the Community's population are permanently resident in upland areas. The average population density (42 people per square km) is only one third of the average for the six most "upland" countries. In certain peripheral upland areas the figure can be as low as 2 or 3 people per square km.

Although there is great diversity in the local, regional and even national situations of the upland areas, there are a number of important characteristics which they have in common.

- **physical geography:** pronounced relief, poor soils, more extreme climatic characteristics and exposure to natural hazards, limited natural resources, but considerable natural attractiveness;
- **spatial imbalance:** a poor level of economic integration between the uplands and their surrounding lowlands, and between the valleys and the hills or mountains within the uplands themselves;
- **socio-economic constraints:** a narrow economic base (dependence on agriculture), remoteness, higher investment costs of infrastructure;
- **ecological richness and vulnerability:** many contain National Parks and other protected areas.

It is these disadvantages which explain the lack of development and poor standard of living in upland areas in general compared to the rest of the Community. Estimates suggest that half of the 40 regions in which at least 50% of the total area is upland, have an economic development index of between 37% and 75% of the Community's average (Economic and Social Committee (1990), A policy for upland areas).

While this is true in general, there are considerable differences in economic development and prospects between the upland areas. This is clearly illustrated in the case of Italy where of its 30 most prosperous communes (out of a total of 8,000), 23 are in upland areas while of its 30 least prosperous communes, 27 are in upland areas.

Upland areas can be broadly split into three categories: extreme peripheral uplands, intermediate uplands and developed uplands.

The extreme peripheral areas include the northern Highlands of Scotland, the Greek uplands (Ipiros and Thraki), the southern Italian uplands, North-eastern Portugal and the Sierra de Gredos and the western Cordillera Cantabrica of Spain. These areas are far from economic centres and suffer from inadequate communications. In the absence of economic opportunities, population has been in long-term decline. This has negative consequences for the ecology of these areas: plant cover is

reduced, land is no longer tended leading to erosion, increased incidence of landslide and changes in the water system.

The intermediate uplands include areas such as the Pyrenees, the Massif Central, the Vosges, the uplands of England, Wales and southern Scotland, the Sierra Nevada, the Harz and the Frankenswald. The inherent disadvantages are still very evident, but their geographical position gives them a development potential with new economic opportunities arising in tourism.

Following a long period in population decline, many of these areas, such as in the Massif Central, the Vosges and Scotland, are tending towards demographic stabilization.

The developed upland areas are located in Europe's major development corridors or close to major centres of economic activity. In these areas, such as most of the Alps and the uplands in the western part of Germany, the advantages of geographical centrality and other factors such as a dynamic entrepreneurial environment have overcome the disadvantages of topography.

The economic success of the Alps is highly dependent on tourism. At present, the Alps account for about one quarter of the annual turnover of tourism in the world (some 40 billion ECU). About 100 million tourists visit the Alps each year, almost 60% going to the three Community countries. 70% of the 12 million inhabitants benefit directly or indirectly from tourism. 3,000 cable railways and 13,000 ski-lifts perform 1,300 million trips per year.

The very centrality of the Alps, while contributing to its accessibility as a tourist venue, also brings certain disadvantages in the form of trans-alpine traffic between northern and southern Europe. Traffic rose from around 27 million tons in 1970 to 56 million tons in 1985. The share of the railways fell from 81% to 45%, whilst that of the roads increased six-fold to 30 million tons. This has contributed to the fact that, in the summer of 1990, the ozone concentration in some Alpine areas exceeded permitted limits, while carbon dioxide emissions in some mountain valleys are three times as high as under medium city traffic conditions. These environmental effects, together with those arising from the pressure of large numbers of tourists (clearance of forests, erosion, waste disposal, etc) are reaching critical levels. Environmental protection measures will have to be increasingly integrated into the development policies of these upland areas.

Footnotes

- 1 *The European Commission (1988), The future of rural society. Supplement 4 to the Bulletin of the European Communities.*
 - 2 *Ibid.*
 - 3 *CEPS (1990), New directives for European agricultural policy.*
 - 4 *B. Ilbery 'The challenge of land redundancy' in D. Pinder, 'Challenge and Change in Western Europe'. Belhaven Press.*
 - 5 *R. Lee (1987), 'Rural changes and pluriactivity in Europe' Second report to the EC Commission — Arkleton Research 1991.*
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The New Role of Border Cities and Regions

Border regions are among the more disadvantaged areas of Member States. This is not simply because they are peripheral but also because of the constraints imposed by the juxtaposition of different legal and administrative systems, reinforced by poor cross-border communications. With increasing integration, the Community's internal frontiers will lose much of their previous significance. Formal changes after 1992 will not, however, be immediately or automatically reflected in development planning.

There is a danger of areas bordering third countries becoming more peripheral. These areas will also be among those most affected by developing relations with the EFTA countries and with the countries in Central and Eastern Europe in the form of increased migration and cross-border commuting. At the same time new commercial opportunities may arise as the process of reform in the former centrally planned economies gathers momentum.

The economic geography of border areas

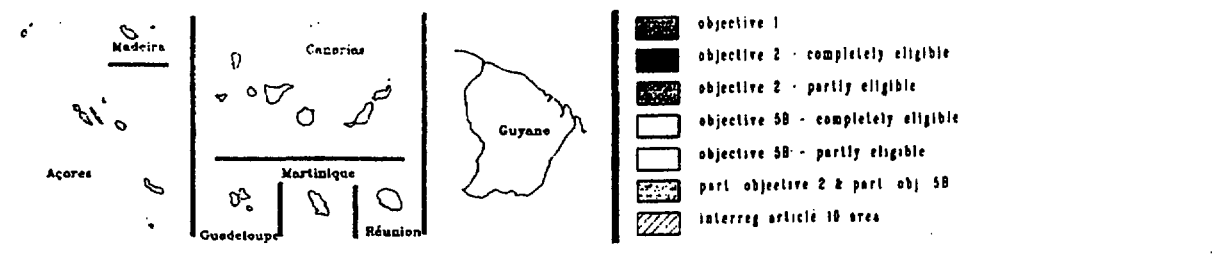
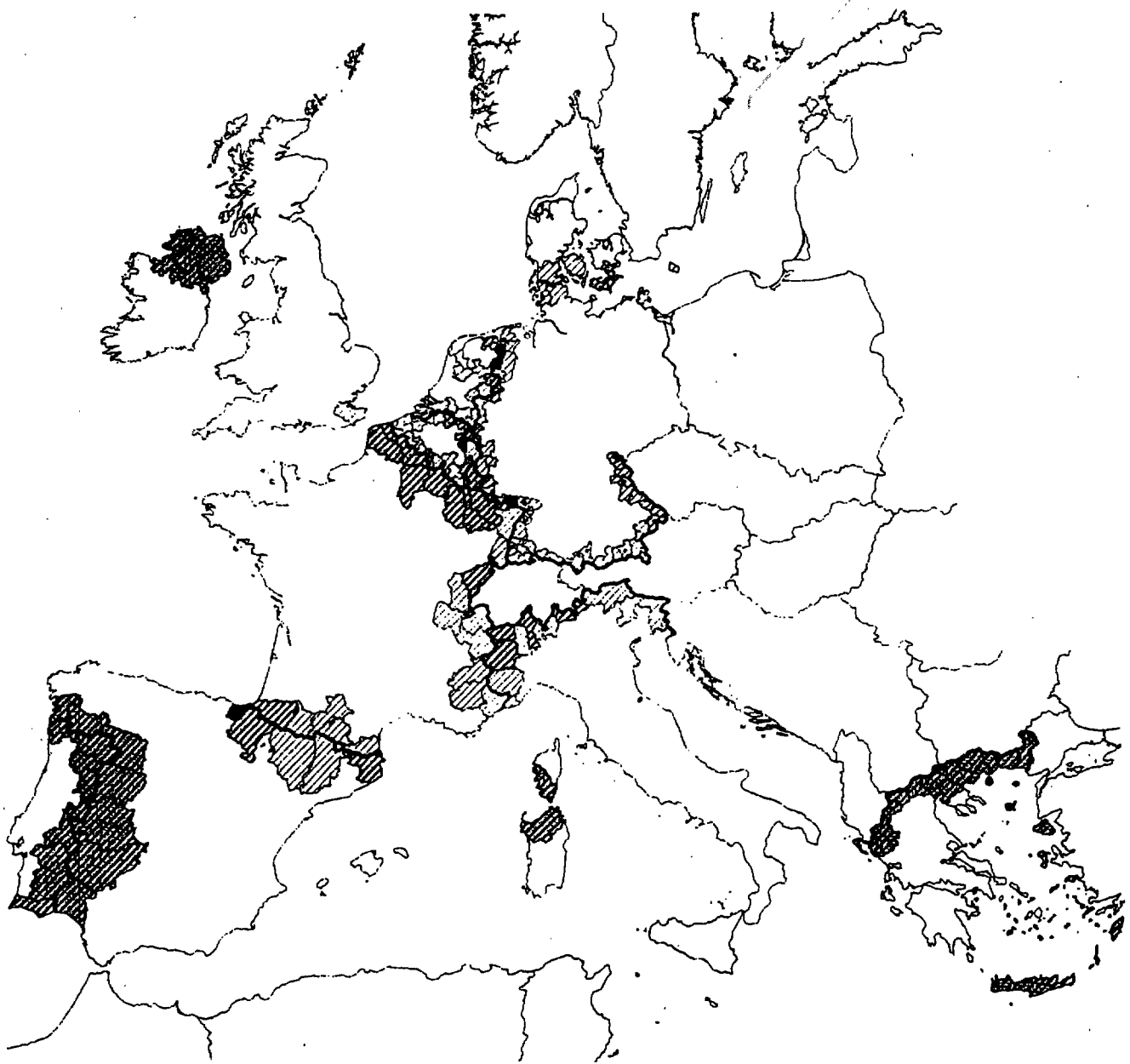
The European Community has almost 10,000 kilometres of land frontier. Internal borders make up roughly 60% of this, the remainder

being borders between the Community and its neighbours in Central and Eastern Europe. The regions along these borders account for around 15% of the total land area of the Community and some 10% of its population (Map 28)¹.

Border areas differ widely in terms of language, econ-

omic, cultural and physical characteristics. Those in Ireland and the South of the Community, along the frontiers between Spain and Portugal, Spain and France, France and Italy and along the external frontiers of Greece, are largely mountainous areas with under-developed economies. Population den-

Border Regions as Defined in COM C(90)1562/3 INTERREG



sity in these regions varies from just over 40 to just under 100 people per square Km, compared to a Community average figure of 145. By contrast, most northern border areas, such as those along the French/German, Dutch/German and Dutch/Belgian frontiers, are not divided by any dominant physical features. These regions are densely populated — in the range 240 to 430 people per square Km. Their economies are developed and reasonably well integrated, but they are still divided by historical events.

The border areas along the eastern frontiers of the Community are not generally affected by major physical barriers but there has been very little integration of local economies and there are many language and cultural differences.

The legacy of borders

Changing borders have been a feature of Europe's political history but most of the borders of the Community

have been in place for a century or more. Their experience has shaped the economic, social and cultural development of border regions and cities for even longer than that. With some exceptions, border areas have tended to suffer as a result of their location², because:

- they are located on the periphery of the Member State concerned and are therefore isolated from the main centres of economic activity and decision-making;
- their commercial centres are separated from their natural hinterland, so causing distortions in the pattern of trade and provision of services;
- they often have inferior infrastructure because they are located at the extremities of national transport and communication networks (though this problem is more acute for regions on the periphery of the Community than those more central);
- in many cases, especially when they are located on the periphery of the

Community, they are poorly endowed with natural resources and have less developed social and business services. There are notable exceptions such as the important nature parks on both the French and Spanish sides of the Pyrenees;

- they often have different legal, administrative and social welfare systems as well as different languages and cultural traditions from adjoining areas on the other side of the border which hinder communications and co-operation. There are special difficulties for the regions bordering the countries of Central and Eastern Europe where contacts have been almost non-existent for 45 years.

The combined effect of these disadvantages is that, on average, border areas tend to have lower levels of income per head and higher rates of unemployment than other regions in their countries. However the negative effects have probably been most serious in the poorer areas of the Community, notably in

Community Initiatives on Border Areas

The Commission has shown the importance it attaches to tackling the problems of border areas through the adoption of the Community initiative on border areas — INTERREG (Notice C(90)1562/3 to the Member States, laying down guidelines for operational programmes — OJ C 215, 30.8.90).

A total budget of 800 million ECU has been allocated by the Community under INTERREG to assist border regions to prepare for the single market. It places particular stress on the need for more active cooperation between regional and local communities across national borders to overcome their disadvantages. A novel feature of INTERREG was the decision by the Commission to request Member States to submit single programmes covering both sides of shared borders.

Partly in response to INTERREG, and earlier Community initiatives for border areas, and in part due to the realization by national, regional and local authorities of the urgency of the problems facing these areas in the light of the single market and EMU, programmes are now being launched along the Community's borders to upgrade infrastructure and to promote cross-border cooperation across a wide range activities. Complementing the INTERREG initiative and in partnership with Association of European Border Regions the Commission has set up LACE, an observatory on matters relating to cross-border cooperation. LACE will provide support services for transfrontier activities, including access to expert advice and assistance, a networking database and training workshops.

Portugal, Ireland and Greece. The GDP per head of the border regions in these three countries (excluding Kavala in Greece) is between 40 and 65% of the Community average.

Internal border areas: factors determining future development

During the next ten years the position of internal border regions and cities could improve significantly as they become internal areas of a more integrated Community. Cities like Lille, Maastricht, Strasbourg, Bilbao, Vigo and Londonderry should become economic centres of more extensive hinterlands. The pace of change and the benefits it will bring will be determined by three main developments: progress towards economic integration in the Community as a whole, future investment in infrastructure in border areas and the introduction of legal and administrative changes to allow closer cooperation with

neighbouring regions and cities.

Economic Integration

The removal of remaining barriers to trade in goods and services will encourage reorganization of trading patterns and should promote the development of economic integration across national borders. Fixed exchange rates and the eventual creation of a common currency should provide a further stimulus. Some regions which are now peripheral in their national context will become more central in a more integrated Community: in particular those on Germany's western borders and in the border areas between France and Italy.

Considerable numbers of people already live in one Member State and work in another, despite the obstacles created by differences in fiscal regimes, social legislation, culture and language. The various steps being taken by the Community to facilitate the free movement of citizens should increase this cross-border mobility and lead to

the emergence of new employment areas extending across national boundaries³.

Infrastructure

Road and rail networks across national borders are often poor because they were planned as part of networks radiating outwards from national capitals. This is particularly the case in peripheral countries. In addition, the low population density in border areas can increase significantly the public investment costs of providing good transport and communication systems.

Economic activity in these areas is relatively under-developed and is often dependent on resource based industries like coal and steel which are in decline (as in northern France and southern Belgium) or on low technology activities such as textile production or tourism. There has also been a tendency in the past to locate 'dirty' industries (eg chemical plants, nuclear power stations and waste disposal facilities) near to national borders.

Public services and public utilities, such as education and training, health, energy, telecommunications and water, tend also to be under-developed, partly because of low population densities but also because national borders have prevented efficient local cross-border systems from being established.

The combination of weak demographic structure, poor infrastructure and public services and unbalanced industrial development has adversely affected economic growth in a number of border areas. A distinction should be drawn here between the more developed areas in the North of the Community and the less developed areas on the southern and western periphery where major deficiencies in economic infrastructure are evident.

An improvement in the position of the latter will depend to a major extent on investment in basic infrastructure and productive capacity undertaken by the Community and by national, regional and local authorities in the 1990s. A further important factor will be the extent to which border regions can achieve economies of scale

and improved efficiency through the joint planning and provision of public services, the organization of common transport and communication systems and the joint promotion of industry and services.

The future development of border areas has a particular importance for the Community since they represent both a potential impediment to and a potential model for the integrated development of the economic and physical space of the territory as a whole.

Measures to improve the economic infrastructure of border areas are likely to be maintained at a significant level during the 1990s. National, regional and local authorities as well as the Community (see Box: Community Initiatives on Border Areas) have already indicated major plans for investment in border areas in transport and communications (in Spain, Portugal, France, Ireland), industry in (France/Belgium/Luxembourg and Lille), tourism (in Ireland, France/Spain and France/Italy) and environmental protection and waste disposal (France/Spain and Ireland/N. Ireland).

Organizational Issues

A third aspect which will have an important bearing on the position of border regions beyond the year 2000 are the legal, institutional and administrative arrangements which underpin efforts in cross-border planning and cooperation. It is evident that there is a legacy of national, regional and local administrative practice under which cooperation activities between regions and cities of the Community are still regarded as being more international than inter-regional in nature. This complicates matters when even relatively minor forms of cross-border joint action are involved.

Since the beginning of the 1980s, prompted by Community Institutions, the Council of Europe and the Association of European Border Regions (AEBR), various new bodies have been established and existing bodies expanded to promote cross-border cooperation.

These broadly take one of three forms:

- informal cross-border discussion groups bring-

in together representatives from local or regional authorities to exchange information on issues of common concern. This approach is most common on the borders between Spain and Portugal, Ireland and Northern Ireland and France and Italy;

- standing working groups or conferences of regional or local authorities often established within the framework of an inter-state agreement which have primarily an advisory, consultative or lobbying function. These exist along most of the French borders and along the border between the Netherlands and Germany;
- cross-border regional planning commissions established normally through formal agreements between Member States with the aim of harmonising regional and sectoral planning and developing cross-border action plans. These are most common along the borders between France and Germany and France and Spain.

This type of institutional activity is likely to intensify. However, since there may be legal and administrative barriers to further cross-border cooperation, it may be necessary to consider the introduction of a special Community framework to facilitate the establishment of cross-border structures at local and regional level (perhaps of the kind negotiated between the German and Dutch governments to facilitate trans-frontier actions).

External border areas

For external border areas it is more difficult to predict what is likely to happen by the year 2000. It is not even certain where the external borders will be. There are firm indications that many countries are seeking to join the Community while it seems likely that Austria and Sweden will become members during the 1990s, so that there will be a whole set of new borders by the end of the decade.

The areas along these borders will be faced with the same kind of problems

which have characterized the Community's internal border regions over recent decades but to a much more serious degree.

The lack of economic integration between regions and local communities on either side of these borders hitherto is likely to hinder development efforts. This would be a particular problem were any of the countries of Central and Eastern Europe to become full members. In any case, there will be closer collaboration with these countries as the decade proceeds. Nevertheless, the conditions for free movement of people, goods and services across the borders are likely to be very different to those now being established within the Community.

The situation in Denmark is quite different. Although the existence of the external border has limited cooperation between North Sjælland and Skåne, the future entry into the Community of Sweden will offer new opportunities. The completion of the new link between Copenhagen and Malmö will help to underpin the position of Denmark (where the Oresund region already has the strongest economy

in the region) as the gateway to Scandinavia.

The ability to share public services (health, education and so on) and public utilities (electricity, gas and telecommunications) so as to achieve economies of scale and efficient delivery will continue to be severely limited by differences in administrative and legal systems.

Given the existing pattern of cultural, ethnic and linguistic affinities, the immigration pressure from the East (including flows from the more independent states of the Soviet Union) into the Community is likely to concentrate, at least initially, in areas near to the eastern borders of the Community — northern Greece, southern Italy, North-eastern Italy, Austria and Germany. Greece and Italy face an uncertain future as a result of the conflict in Yugoslavia and the flow of migrants from Albania. Northern Greece and southern Italy are the least well equipped to handle the problems associated with substantial immigration. Main cities in border areas such as Salonika, Bari, Trieste, Vienna, Graz and Berlin might face the most serious problems.

Special action will need to be taken by these, especially the more vulnerable, to prevent large-scale immigration having a serious destabilising effect.

As well as immigration, there may also be a significant increase in the number of border workers who reside outside the Community but travel into the Community to work. This too may impose strains on the economies of border areas and the administration of public services.

Environmental degradation (water and air pollution) is a serious problem in many of the existing and probable future eastern border regions. Much of this arises from industrial or agricultural practices in regions and cities outside the Community. Any attempts to improve environmental quality in these areas must involve the extensive coordination of local and regional authorities on either side of the Community's frontier.

Cross-border transport and communications systems will also need to be planned and organized in an integrated way to ensure that the potential economic

benefits of East-West trade and cooperation are properly exploited. At present there is a serious mismatch between the position in existing or future Member States of the Community and their eastern neighbours. All of these elements mean that the Community's external border areas face major challenges as regards economic development and physical planning in the coming decade. At the same time, because of their position and their familiarity with conditions on the other side of the frontier, these areas could have new commercial opportunities and a new extended hinterland.

Overall Outlook

The measures now in train should greatly ease the problems of the internal border areas of the Community by the year 2000. By contrast, external border areas will face a range of problems requiring urgent action at Community, national, regional and local level over the next decade and beyond. This action needs to be organized around three main axes:

- i) substantial investment in infrastructure and industrial development, including special measures to tackle the problems of environmental pollution on both sides of the border;
- ii) a major programme of cross-border cooperation to gain the considerable benefits of coordinated physical and economic planning and the sharing of public services and facilities;
- iii) close cooperation to manage immigration and the flow of cross-border workers.

Attention will also need to be given to how economic trans-frontier cooperation between regional and local border communities can be facilitated by removing some of the obstacles arising from differences in legal and administrative structures. In relation to external frontiers, the severity of the problems is such that the Community, with the involvement of its budget for external relations (the PHARE programme in particular), should promote actions on

the other side of the border,
subject to such actions
being accorded priority by
the countries concerned.

Footnotes

- 1 *These and other statistics in this chapter are obtained from the Statistical Office of the European Communities (Eurostat), except where otherwise stated.*
 - 2 *Martinos H. and Caspari A. (1990), Cooperation between border regions for local and regional development. Study financed by the European Commission.*
 - 3 *The Commission has indicated — in "The living and working conditions of community citizens resident in frontier regions and in particular frontier workers" — the additional measures needed to remove remaining obstacles to freedom of movement and the problems created by national differences as regards pensions, social welfare benefits, income tax and public services.*
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Coastal Areas and Islands

The coastal areas are among the most important but most fragile natural assets of the Community. In many regions, particularly less developed ones, they are a key aspect of their development potential. New residential, commercial and tourist developments are competing for a limited amount of land around the coast and posing an increasing environmental threat. Wide seasonal variations in the pressure from tourism intensify the problem.

The Community's islands share some of the problems of the coastal areas, such as those arising from the need to reduce overcapacity in the fishing industry which calls for new efforts to encourage economic diversification. Their generally small size and geographical isolation are major obstacles to be overcome in promoting their economic development. Support for the development of new technologies, transport and modern telecommunications on the islands are of great importance in helping to make it viable for new enterprises to locate in remote areas.

Growing Pressure on Coastal Areas

The 58,000 km of coastline which the Community possesses (excluding that of the Greek islands and the inland seas of Denmark) is very unevenly divided between Member States and is extremely varied in terms of

density and type of economic activity¹.

Where there is a high density of population or intensive use of land, whether for economic reasons (for example, in the Scheldt estuary) or because the area is attractive to tourists (especially the Mediterranean), excessive pressures are put on the marine and land environment, which is often particularly diverse and vulnerable.

For many less-favoured regions, the areas around the coast are a major element in their development potential and it is therefore essential that development is as sensitive as possible to environmental needs.

Definition

There is no common and unique definition of what constitutes a "coastal

area", but rather a number of complementary definitions:

- regulations governing the use of land, such as certain legislation in France, Portugal and Spain limiting or prohibiting developments in coastal areas, define it as a 100 metre-wide strip of land around the coast. This amounts to 5,800 square km or 0.25% of the total Community land area;
- there is scientific consensus that all marine resources in coastal waters depend almost entirely on the environmental quality of the first kilometre of land from the shore;
- the zone in which most of the infrastructure and activities directly connected with the sea are located extends some 5 km inland from the coast and amounts to 290,000 square km or 12.5% of the Community land area;
- the administrative boundaries of coastal communities (on land) and territorial waters and/or

jurisdiction (at sea) provide a useful definition for statistics and policy purposes;

- the notion of coastal river basins provides a good basis for analysing functional and spatial relationships — both physical and biological — between the coastline and the hinterland, but this definition varies from case to case and is not easy to quantify.

In this context, it is important to note that in 1977 Member States established their sovereignty over sea areas (6 or 12 nautical miles), or, their jurisdiction (especially in relation to fishing), thereby creating a set of rights and obligations which are clearly more geographically extensive than coastal areas per se.

Each definition is useful for a particular purpose. For the problems raised by the development and protection of coastal areas the definition needs to extend beyond the narrow coastal band, to encompass at least the area stretching 5 km inland and offshore from the coastline.

Patterns of land and sea use

In terms of their overall land use, three general kinds of coastal area can be distinguished:

- areas with a high concentration of people and business, sometimes limited in size but with a strong influence on large parts of the surrounding region; these areas are characterized by a disappearance of the natural environment and have effects which are felt over a wide area;
- areas with a mixture of urban, agricultural, fishing, aquaculture and tourist activities and which are characterized both by conflicts over land and sea use between different kinds of development and by great seasonal differences in activity;
- areas which are still relatively unspoilt, either because their physical features limit the possibilities for development, such as with certain sections of rocky coastline

or marshy areas, or their location is not favourable for economic development, or because they are protected by law and/or are designated as areas of natural beauty or ecological significance.

The highly developed areas, which occupy around 5% of the Community coastline at present, are continuing to expand. In the mixed areas, which experience conflicts over land and sea use, new developments are gradually reducing the open space. The relatively unspoilt areas are being encroached upon mainly by tourist developments, especially in the Mediterranean. These areas are also subject to the harmful effects of pollution produced elsewhere.

Data limitations mean that a more systematic picture of the general patterns of land use in the Community's coastal areas is not possible. Piecemeal information, however, can give a preliminary impression of certain areas.

In Portugal for example, satellite mapping has shown land use in the 5 km-wide coastal area to be divided as follows: agricultural areas

(41%), semi-natural areas (17%), forests and woodland (24%), wetlands (7%), built-up areas (7%), other (4%)².

Density of occupation

Urban areas represent less than 2% of the Community land mass, yet account for nearly 8% of the land in the 5 km-wide strip around the coast. This average figure conceals a range of very different situations. For example, nearly 35% of the population of Spain is concentrated around the coast in only 7% of the total land area. In certain regions of Portugal, Spain and of the French and Italian Mediterranean, figures are considerably higher; for example, 75% of the population of Provence Cote d'Azur live in the coastal districts. The 7% of Portuguese coastal areas which are built-up contrasts with a figure of only 1.5% for the country as a whole.

In general, the West Mediterranean coast is one continuous, heavily congested built-up area, broken up by sections of protected coastline whose features make it

difficult to develop. Particular extreme situations illustrate the point:

- more than 60% of the Provence coastline has been taken over by urban development;
- more than 50% of the Mediterranean coast of Spain is taken up with intensive housing, industrial and tourist development.

Such figures indicate the importance of built-up areas in a zone restricted in size and explains the frequent conflicts over land use.

In addition, rates of population growth are usually considerably higher than in interior regions. In the Mediterranean coastal areas of France and Spain, the rates of growth are about three times the Community average. While municipalities in the interior of Sicily lost on average 30% of their population between 1951 and 1986, the coastal municipalities grew, some even doubling their population.

The situation on the North Atlantic and North Sea coastlines is, in compari-

son, less extreme, with many sections of the coast remaining relatively undeveloped while urban areas and industry are clustered around important development centres such as Dublin, Rotterdam and Copenhagen. However, certain stretches of these seaboard, such as the Belgian coast, are almost entirely built up, and others, such as parts of Brittany, are tending in the same direction.

Intensive tourist development

A well-established consequence of the attractiveness of coastal areas is the high level of tourism. Despite the growth of tourism in mountain and rural areas, coastal areas remain the principal destination of tourists. Again, the southern coasts of the Community face the most extreme conditions. The number of international tourists in the Mediterranean coastal areas doubled between 1970 and the mid-1980s from 58 million to 117 million³. Growth rates were particularly high in the countries where tourism was under-developed at the be-

ginning of the period. In Greece the growth was five-fold, while in Portugal the number of overnight stays increased from 13 million to almost 40 million in the same period.

The growth of tourism has been the major factor behind the urbanization of the coastal region. 65% of the Spanish Mediterranean coast, for example, was affected by tourist activities in 1989 whereas in 1981, only 8 years earlier, the figure was only 42%⁴.

Most tourist activity is concentrated in a relatively short period of the year. The summer population of the Mediterranean is often 10-20 times as great as the number of permanent residents and in certain parts can reach 100 times.

The capacity of local infrastructure and facilities in coastal areas falls well short of that required to cope with such seasonal increases in demand.

A rich but fragile area

Nearly 30% of the important biotopes in the Community

are located in the 12.5% of land in the coastal areas⁵. This is why Member States have been making efforts to ensure protection of what is regarded as a major part of their national heritage. The most effective method is the purchase of stretches of coast. For example, 9% or 480 km of the French coastline, has been acquired by the State (by the Conservatoire du Littoral et des Rivages Lacustres); in England and Wales, 770 km of coast are owned by the National Trust. Designation and protection by law is another method used more widely: in Spain for example, 12% of the Mediterranean coast, some 350 km, is protected by law. Coastal protection by designation, however, is more widely applied in the northern states than in the South.

Despite such policies, many of these natural areas are subject to pressures which are causing them to diminish in size. A recent survey in France has indicated that 15% of natural areas on the coast have disappeared since 1976 and are continuing to do so at the rate of 1% a year. The coastal marshes, which play a vital role in the maintenance of biological

diversity, have diminished considerably over the last 100 years, essentially because of drainage programmes. Italy which had around 700,000 hectares of coastal marshes at the end of the last century, had no more than 192,000 hectares in 1972 and has less than 100,000 hectares today⁶.

Urbanization combined with changes in agriculture have reduced patchworks of fields and hedgerows — the lower Normandy region provides a good example of these changes. In 1976, the traditional landscape of fields and hedgerows covered 101,760 hectares in the 5 km-wide coastal strip; by 1990 this had declined to an estimated 89,200 hectares; the forecast for 1997 is for a further reduction to 84,800 hectares, which would mean a decline of 17% in just 30 years⁷.

Marine pollution is concentrated in coastal areas, in particular major river estuaries and inlets. The concentration of contaminants in coastal zones inflicts the maximum damage ecologically and economically. The constant problem of eutrophication from nitrates and phosphates and the problem of sewage

and other organic wastes affecting the fishing and tourist industries have become unfortunate features of many coastal areas. In addition, pollution of sediments, as opposed to the sea itself, is worse in these shallower areas, and this contamination remains for a considerable time after the source of pollution has been tackled.

Concentration of activity is a major cause of coastal erosion, especially of beach areas. More than 5,200 km or nearly 30% of Community beaches — 10% of the coastline — are estimated to be subject to erosion⁸. This is a problem all around the coast affecting all parts of the Community, but of particular significance in the Mediterranean.

As a result of the various pressures, it is claimed, for example, that three-quarters of sand dunes in the South of the Community have disappeared since 1960.

The future of coastal areas

Analyses of the present situation, as well as the studies

of future prospects conducted over the past few years — in particular those carried out under the aegis of the Blue Plan for the Mediterranean — provide a basis for assessing likely medium-term prospects for the coastal areas⁹.

Demographic changes

The rapid growth of population around the coast is set to continue in the coming years. This is particularly true of the Mediterranean regions where population movement from inland is likely to increase over the next ten years. The sections of coastal areas where these movements are likely to be most pronounced include the East and North of Greece as well as the western part of the Mediterranean from Languedoc-Roussillon to Andalusia, where growth averaging 50% and reaching 75% in many places is likely. The growth will occur largely in existing urban centres.

Demographic pressure on the North Sea coast will be less pronounced overall, but significant in certain places. It is likely to occur around existing centres of population through the progressive de-

velopment of semi-urban areas.

The overall ageing of the European population will also be felt in the coastal regions, partly because of their attraction for retired people.

Development of tourism and industry

Despite the beginnings of a decline in certain coastal areas which have neglected to preserve their natural attractiveness, trends still point to a continuing rapid growth of coastal tourism in the next ten years as a result of:

- the growing international nature of tourism facilitated by the continued increase in mobility and standard of living;
- the increase in the number of people not working, especially those in retirement.

Of the 3–3.5% overall growth of tourism forecast by the World Tourism Organization, about 37% will be in the Mediterranean area. The UNEP Blue Plan forecasts some 140–180

million tourists in this area in the year 2000, depending on the rate of economic growth. At present, the four Mediterranean Member States account for over 80% of international tourism in the Mediterranean as a whole. The growth of tourism will be felt almost everywhere except in well protected areas.

It is difficult to see how such numbers could be accommodated unless seasonal variations are evened out. There seems to be insufficient time for existing structures — local, regional, national and Community — to react to the increasing scale and intensity of problems.

Given their spatial and environmental limitations, pressure on land and the environment will reach saturation point in many coastal areas. Development potential will then decline. This process is already beginning. Certain parts of the Spanish Mediterranean coast are already blighted by an excess of unattractive and environmentally insensitive tourist development. The potential consequences for tourism are apparent — for example the number of tourists in the Valencia region of Spain de-

clined by 10% between 1988 and 1989 with overnight stays falling by 15% over the same period¹⁰. Effective environmental management in coastal regions is an essential element of any successful strategy for economic development.

Increasing pressures on the natural environment

The increase of population, further urban development, tourism and the attraction of coastal areas for industry and commerce will have a number of consequences especially in the Mediterranean¹¹.

The absorption of land by the growth of tourist resorts and recreational activities alone is likely to double by the year 2000, using up another 8,000 square km of land along the Mediterranean coast.

Annual water consumption per head in these areas, which was 90 cubic metres in 1980, is likely to exceed 120 cubic metres in 20 years time¹². The availability of fresh water for domestic, industrial and agricultural use

could become a significant problem by the year 2000 particularly in Greece, Spain, Italy and the South of France. Underground water reserves are already being depleted at a faster rate than they can be replaced, causing problems of salinization and land subsidence in the coastal areas of the North Adriatic, the Naples region, the Var and the Greek islands.

Climatic changes resulting from the greenhouse effect and possible global warming are likely to have important consequences for coastal areas, including the flooding of wetlands and large sections of river estuaries and deltas by sea water (for example, those of the Eber, Rhône and Po) and a worsening of the problem of coastal erosion.

Pollution will continue to pose a threat. Heavy industries — steel, mining, oil refining and industrial chemicals — many of which are located on the coast are unlikely to grow much in future. As a result, there is likely to be a reduction of traditional industrial pollution such as of toxic and dangerous waste. But this could be outweighed by the

predicted increase in solid waste created by tourists. This will increase from 2.8 million tons a year to 8–10 million tons in 2025, while waste water will increase from 0.4 billion cubic metres to 1.5 billion cubic metres¹³. There are also few signs that the problem of eutrophication from nitrates and phosphates will be reduced this century to a level which is not harmful to the fishing and tourist industries.

There are, however, signs of a positive response to these increasing pressures. Public concern for the environment is increasing; they are regarded increasingly as a common heritage, to be preserved for future generations. Surveys indicate that public opinion will play an important role in the years to come, as demonstrated by a recent enquiry carried out for the French Conservatoire du Littoral. This showed that 80% of the people interviewed saw the protection of the coast as a high priority. German research has shown that, whereas only 30% of tourists were aware of environmental problems in 1985, this had reached almost 60% by 1990¹⁴.

It is also probable that one of the major tools of intervention — acquisition and designation of areas of cultural and natural beauty — will be increasingly applied. The French Conservatoire du Littoral, for example, has the aim of acquiring 15% of the French coastline by the year 2000, as against the 7% it has at present. But total preservation of a certain proportion of the coast is insufficient on its own to solve the problems of the coastal area and ensure their long-term prosperity. Protected areas are still open to pollution from elsewhere. The heart of the problem lies in the areas of mixed activity, where effective planning structures at the local and regional levels are needed to resolve conflicts over land use and the environmental and development problems.

The use of maritime areas

Geographical circumstances, and more especially the social and economic importance of fishing and aquaculture at regional level, mean that the sea and coastal (and island) areas are inextricably

Coastal Areas Heavily Dependent on Fishing and Aquaculture

The fishing industry of the Community is, in terms of the number of tons of fish caught (7.9 million in 1988), the fourth largest in the world after Japan, the USSR and China. Although there has been a gradual decline in fishermen, there are still 300 thousand in the Community and another 1.7 million people are employed in related industries such as boat building and repairing, fishing gear, processing and marketing. The contribution of the fisheries sector to GDP of Member States varies from 0.2% to 1.2%.

Although fishing is practised to a greater or lesser extent along the entire coastline of the Community, there is a clear pattern of concentration in certain regions on the mainland as well as in island regions where their role in the regional economy is particularly important.

The Common Fisheries Policy was finally established in 1983 some years after the generalized extension of fisheries jurisdiction to 200 miles. Since then, the general patterns of regional concentration have not changed fundamentally. The TAC* /quota system has played a role in this relatively stable situation.

* TAC = Total Allowable Catch

linked. Given the variety of uses of maritime areas, and the interrelationship between land and sea, only an integrated approach can avoid conflicts while assuring a harmonious and optimal utilization of the wealth of the sea, especially in relation to marine resources.

The pattern of fishing, aquaculture and related activities is determined by the geographical distribution of fish stocks and fishing traditions. The concentration of these activities in coastal regions where there are few or no opportunities for economic diversification reinforces the dependence on fishing. This dependence is a decisive factor as much from a social as an economic point of view for certain coastal, and island, regions and merits special attention for this reason.

The general picture

The general picture for the coming decade could be one of an increasing failure of the capacity in coastal areas to accommodate the pressure of new developments, both in terms of the space available and in terms of the

The major problem at the present time is the serious imbalance between resources and fishing capacity. Overcapacity of the Community fishing fleet is causing excessive depletion of fish stocks which cannot continue if the industry is to have more than a short-term future. Solutions must therefore be found to redress the imbalance, by considerably reducing fleet capacity. Estimates made by a group of independent experts consulted by the Commission in 1989 point to the necessity for a reduction of at least 40% in fleet capacity on average throughout the Community. This will have consequences which will vary between regions.

For those regions faced with the impact of the reduction of fishing capacity, finding suitable alternatives for traditional fishing activities will be of utmost importance.

In this context it should be noted that aquaculture is an important part of the Common Fisheries Policy. In 1989, the EC produced around 925,000 tons of fish, shellfish and molluscs worth 1,4 billion Ecus. European aquaculture is also a coastal and rural activity which could be of particular value in the context of Regional Programmes by creating employment.

The Community incentives policy for the farming of sea or fresh water fish, shellfish and molluscs will contribute to supplying the Common Market with fisheries products and to reducing the chronic negative trade balance in this area.

ability to limit the negative impacts of those developments on the environment. A failure to address the problem of overload will to some extent reduce the pressures by gradually diminishing the attractiveness of coastal regions for tourists and investors. Reliance on this type of mechanism, however, implies an unacceptable environmental cost, threatening the sustainability of development in the long-term.

The coastal areas of the Atlantic and the North Sea can call upon a lot of expertise. By contrast, in the Mediterranean areas, there is a strong need for know-how and resources in addition to any purely regulatory approach which is unlikely to correct the problems.

In addition the attractiveness of the coastal areas is showing signs of creating negative effects on the economic development of the regions immediately inland, which face a danger of 'desertification'.

Integrating the Islands

There are around 400 inhabited islands in the Community, varying significantly in terms of size, population, geographical features and remoteness^{15,16}. Most are geographically isolated, a fact which tends to retard their economic development. Compared to the continental regions of the Community they present much larger problems with regard to transport, energy supply, communications and so on. Consideration of these special problems is a prerequisite for planning a strategy for realising their potential for development.

The geography of islands

Size

The total land area of the islands is 120,000 square km or just over 5% of that of the Community as a whole. Their population is around

13 million, 4% of the Community total. The larger islands, such as Corsica, Sardinia, Sicily and Crete, which account for around half of the land area and even more of population, need to be considered separately from the rest. It is worth noting that apart from ten or so islands, the others are less than 500 square km and the majority less than 50 square km.

Islands account for 19% of the land area of Greece, 17% of Italy, 4½% of the UK, less than 3½% of Portugal and less than 2½% in the other Member States.

There are 144 inhabited islands in the Aegean sea and large numbers in the North sea, particularly around the British Isles, as well as in the Atlantic (Azores, Madeira and Canaries), the Baltic sea and the Mediterranean (Balearics).

Population

The island population of Member States ranges from just over 14% in the case of Greece and nearly 12% in the case of Italy to less than 3% in Denmark, UK and France.

Population density averages almost 100 people per square km as against a Community average of 140 people per square km. However this figure varies greatly between countries, from 21 per square km for the British islands, 46 for the Dutch islands and 56 for the Greek islands to 158 for the Spanish islands, 164 for the Portuguese islands and 200 for the French Overseas Departments. For Greece the average population density of the islands is half the national average, in Spain twice the national average.

Of the 400 Community islands only 21 of them have more than 50,000 inhabitants. Two have a population of over a million: Sicily and Sardinia; five others exceed 500,000: Gran Canaria and Tenerife in the Canaries, Reunion, Majorca and Crete; eight over 100,000: Fyn, Martinique, Guadeloupe, Corsica, Amager, Madeira, San Miguel (Azores) and the Isle of Wight.

One common characteristic of all the Community islands is the importance of tourism and therefore the variation in population

through the year, especially in the smaller islands. For example, the population of Rhodes doubles each spring, while that of Mykonos increases seven fold. For numerous small islands the tourist population is ten times the local population.

Small islands have some special demographic features: an average age higher than the national average (eg in the small islands of the Ionian 30% of the population is over 65, while the national average is only 14%) and a tradition of emigration (eg the Greek islands and the Azores where large numbers have emigrated to the United States). With a few exceptions their population either declined or remained constant between 1970 and 1990 (eg since 1951 the population of the Cyclades has fallen annually by 1.2% and that of Crete has only increased by 0.3% a year).

Island economies

In general, islands are characterized by a larger primary sector than the Community average, an under-developed industrial sector and an over-

enlarged service sector. Overall, the primary sector tends to account for 20–25% of employment (two or three times the Community average), services for around 65% and industry for the rest¹⁷.

The importance of the primary sector in terms of employment is a reflection of the large numbers of small farmers or in some cases of dependence on fishing (the Scottish islands in particular). Although certain activities are expanding (growing kiwi-fruit in Corsica and flowers or out-of-season crops in the islands on the extreme periphery), the decline in agricultural income is forcing farmers either to quit the industry or to turn it into a secondary activity. Those who abandon farming turn to services, emigrate or fall back on social security.

While in 1971 the proportion of activity in the primary sector in the Greek islands was 55% and in services 26%, by 1985 the figures were 30% and 52%¹⁸.

A few Community islands (Guadeloupe, Martinique, the Canaries and Madeira) are unusual in that agriculture is dominated by banana production. Exports of bana-

nas account for a major proportion of their earnings (60% for Guadeloupe and 50% for Martinique, for example), which makes their economies very much dependent on this crop, although only just over 5% of their workforces are employed in the activity¹⁹.

Fishing has traditionally played a major role in the development of the economies of most of the islands. It remains one of the primary sources of employment, particularly for the islands in the Atlantic. The fishing industry in the islands generally faces a number of disadvantages compared to fishing ports on mainland Europe, which are closer to the marketplace and tend to have more ready access to new technology and sources of capital. A more recent threat to the livelihood of island fishermen has come from the industrial fishing boats from the mainland. This is contributing to over-fishing of stocks which, for example, resulted in a fall in the catch by Orkney fishermen of 21% between 1987 and 1989.

In the Scottish islands there has been some success through diversifying into shellfish and fish farming. In the Shetlands, for

example, salmon production increased from 80 tons in 1984 to just over 8,000 tons in 1989²⁰.

A number of islands (Orkney and Shetland, especially) have also benefited from the oil industry, in economic, if not environmental, terms.

Manufacturing industry is generally weak, islands tending to export primary products and import manufactures from the mainland rather than produce them themselves. In the French islands in the Americas, for example, industry accounts for only 10–15% of GDP compared with 35% for the Community as a whole. The main industries tend to be food, drink and tobacco, textiles or handicrafts. In the latter two cases, work is often done in the home, generating many but low value-added jobs (20–30% of employment in the Portuguese islands is in manufacturing).

Construction and public works are dependent on the tourist industry (hotels and second homes) or public investment programmes (infrastructure and housing renovation). Because of the

growth of national, regional and Community public expenditure and the expansion of tourism, this industry did relatively well in the second half of the 1980s.

Services have increased in importance almost continuously, though the relative importance of the different activities included under this head varies between islands. On the islands where tourism is the main industry, growth has largely been in restaurants, hotels or retailing.

On other islands growth has principally been in the public sector. Because of statutory obligations, central or local government has been forced to provide services irrespective of the size of the local population. Even in groups of islands, the difficulties of travelling from one island to another often prevent economies of scale from being realized and increase the numbers employed.

For most islands, tourism is one of the main sources of employment and income. While measuring the exact effect of tourism on the local economy is impossible, it is clear that it brings in large amounts of

income. The revenue produced by tourism in the Balearics, for example, in 1988 was an estimated 4,000 million ECU²¹.

Tourism comes in many forms, some of which, however, have negative effects on an island's economy. Unplanned tourist development may cause damage to the environment and ecosystem of an island, which are among its prime attractions. The extra population resulting from the development of tourism (85% of tourists arrive on the islands in the tourist season) increases the problems of water supply, waste disposal and so on. There is also the risk of loss of culture, local crafts, tradition and architectural style.

As a result of the tourist industry, employment in services tends to be close to the Community average (except for the Azores and the islands of the UK). This is especially so in the Canaries (where two-thirds of total employment is in the service sector).

Because of their smallness and remoteness, there is a tendency for islands to become more marginalized as economic integration in

the Community increases. Problems arise for a number of different reasons.

Transport²²

Islands, especially in an archipelago, are often at great distances from their neighbours. In the Azores, for example, the distance between the furthest islands is 600 km, while the Shetlands are spread over 100 km and the Dodecanese over 158 km.

Transport issues are both important and complex. Transport systems must combine road, sea and air. Secondly, the cost of transport tends to be higher than on the Continent, affecting not only the mobility of the population but also the regular supply of goods and their prices.

For the Shetlands, the sea passage from Lerwick to Aberdeen takes 14 hours and for the more remote islands in the group the trip takes another 12 hours. In the Dodecanese, the main sea crossing from Piraeus to Rhodes takes 17 hours for a straight line distance of 635 km, though out of

the tourist season it can take 33 hours.

To reach the most peripheral islands takes several hours even by air. The Antilles are 8 hours from Paris and Reunion at least 12 hours. The time taken to reach certain islands is also increased by the lack of a direct service. For example, to go to the Azores means changing in Lisbon, to the Greek islands, changing in Athens and to the French DOM islands, changing in Paris. To travel from one island to another is often a serious challenge. For someone from the Balearics wanting to go to Corsica, the choice is either to go to Paris or change several times at various places around the Mediterranean.

The cost of transportation between islands is frequently 30-40% more than on the mainland. Sometimes it is over 200% higher. For example the cost of transporting a ton between Piraeus and Lesbos which is 346 km by sea, is more than 3 times the equivalent cost of transporting a ton by road.

In tourist areas, transport connections are much less frequent in low season than

in high, when because of demand locals often have difficulty finding places. For public services, frequency is usually decided by central authorities — in the case of Greece, by the Minister of Shipping on the basis of the profitability in each period of the year. For private services, seasonal variations are often extreme: in winter, services between Corsica and Italy, for example, hardly exist, and the connection between Toulon and Sardinia is very irregular.

Bad weather also affects sea and air travel far more than travel by road. The Azores, for example, can be isolated for weeks at a time because of fog and gales (in February 1990 the islands of Corvo and Flores in the Azores were cut off for nearly 40 days).

Transport difficulties are often due to deficiencies in communications and other infrastructure. Although the total number of island ports is very high, not all of them have the latest navigational equipment and may suffer from the depth of water being limited, lack of mechanical equipment or supplies and so on). Many small islands across

Europe have similar problems: Foula and Fairisle in the Shetlands, Flores and Corvo in the Azores, Molene in the Ponant islands and Tory in Ireland, for example.

Though airport facilities are usually better, since most were built recently, many smaller islands have short runways. Some runways in the Shetlands, for example, are grass or gravel strips without navigational aids. Generally, however, there are too few airports. Of the 167 Greek islands only 25 have an airport or airfield.

Energy supply²³

Remoteness and the relatively low demand tend to increase the cost of energy supply considerably. The lack of storage, production and distribution facilities increases the difficulties and impedes economic development especially in manufacturing. Moreover demand usually varies considerably because of variations in population. In the tourist season there can be a 600% increase in energy consumption.

The provision of electricity in archipelagos poses particular problems. In the Azores, for example, the fragmentation of the distribution network means that 25% of electricity production is lost in transmission compared to 10% on the mainland.

Water supply

The construction of underground water mains is often prohibitively expensive, partly because of the rocky nature of most islands. This affects not only the development of tourism but also the health of the inhabitants and agricultural production. Because of the problem, some islands have abandoned irrigation completely.

The prohibitive cost of desalinating sea water or the need to import water in tanks has been a considerable obstacle to the economic development of a number of small islands in the Mediterranean, in the Antilles, in Madeira (Porto Santo), in the Canaries (Lanzarote), and even in some Breton islands (eg Groix).

Environment

Isolated ecosystems are very different from continental ones, mainly because of their restricted size. Changes, even small ones, have a large effect. Ecosystems are constantly being damaged by the introduction of foreign matter (often as a result of tourism), changes to the sea (marine pollution) and the use of the soil (abandoning agriculture in favour of tourism).

Oil pollution on the coast of an island (eg Quessant in Brittany or Whiddy in Ireland), can simultaneously affect tourism, fishing, fish farming and even sometimes farming, with more disastrous effects than on the mainland, since the lack of an hinterland limits the possibility of redeployment of people or businesses.

Social Infrastructure

One of the major problems of islands is a deficiency in social infrastructure. This is one of the main reasons behind emigration and it has restricted the expansion of economic activities. There

are major deficiencies in the areas of public health (eg in the Cyclades there are 1.5 doctors for every 1,000 inhabitants, while on the mainland the figure is 2.9 doctors per 1,000), education (too few schools and a lack of qualified teachers) and business support services (notably to help small and medium sized enterprises).

Future development²⁴

The various options for the economic development of the islands must allow for future trends in population and in the structure of activity taking account of the local environment.

The population of small islands is likely to decrease over the next 20 years, but at a slower rate than over the last 20.

This is generally a result of emigration. This started to slow down in the 1980s, from the high levels of the 1960s and 1970s. The number of emigrants from the Azores fell from 9,000 in 1970 to 1,530 in 1986, a decrease of 83%. A similar

The Community's islands with populations of over 50,000

Sicily	Sardinia
Gran Canaria	Tenerife
La Reunion	Majorca
Kriti	Guadelope
Martinique	Madeira
Corsica	Isle of Wight
San Miguel	Lesbos
Kerkira	Rhodes
Khios	Lanzarote
Menorca	Terceira
La Palma	

Community actions

While there is no specific Community policy covering islands, many are eligible for aid from the Structural Funds under Objectives 1 and 5b. In addition, certain islands (Sicily, Corsica, Sardinia, Greek islands) are covered by the Integrated Mediterranean Programme.

A large number of Community initiatives encompass the islands. REGIS, for example, aims to improve the diversification of economic activity in the very peripheral island regions of Madeira, the Azores, the Canaries and the French DOM, while INTERREG is intended to tackle problems of internal and external border areas, including a large number of Greek islands. Other initiatives contributing to the economic development of the islands include ENVIREG, STRIDE, TELEMATIQUE, REGEN and PRISMA.

Outside of the Structural Funds three specific Community actions (POSEICAN, POSEIMA and POSEIDOM) aim to facilitate the integration of the Canaries, the Azores, Madeira and the French DOM into the single market on the European mainland.

trend can be seen in the Greek islands, where decline in the Greek shipping industry and development of the tourist industry has led to many islanders returning or deciding not to leave.

The shift towards services, especially tourism, is likely to continue and spread to islands which until now have had no tourist industry. This may be true for the islands of the UK and the Azores because of the promotion of ecological and rural tourism.

Three points are of particular importance to the future development of tourism:

- the planning of zones of tourism within an overall strategic framework which takes account of the environmental effects;
- innovative tourist services (discovery/ecological holidays, out-of-season holidays (eg for the retired) and the provision of conference facilities);
- increased air flights and sea crossings to match the growth of tourist demand;

- positive measures to promote coastal diversity, to preserve open and natural spaces and to avoid the negative environmental effects of competition between local authorities and/or island communities.

Islands, however, are not equally placed to take advantage of tourism and not all islands need to do so and development actions, including those of the Community (see Box: Community actions) need to be sensitive to individual needs. Large islands, where the economy is already based on tourism, offer an extended potential to develop other activities and diversify their economies. Creating a 'technopole', for example, might not only allow islands to diversify but also help a larger group of islands to improve their infrastructure, transport, telecommunications, education and so on. Universities or research institutes can be established to promote new developments in the production sectors as well as holding and organising seminars and conferences.

Small islands, however, have difficulty in basing their development on such a strategy

and are more dependent on tourism. There is a difference here between islands where tourism produces enough revenue for the whole year and those where it represents only part of annual income. In the former case, there tend to be important concerns about the environment. If in the future, the environment is not protected, islands will suffer a reduction in tourism and income. In the latter case, some islands manage to supplement their tourist income by other activities such as fishing or oil refining (islands in the North Sea). Islands in the South of the Community, however, have no such other alternative.

The problem of communications, while remaining a serious impediment to economic development, is being increasingly alleviated by improvements in transport and telecommunication technologies (such as video conferencing which allows the organization of meetings and the running of commercial operations without the need of physical presence). In general, the necessary public investment per head is particularly expensive in the most peripheral and sparsely populated islands such as in the case of the 90

inhabited islands of Scotland.

The potential benefits are not confined to commercial activities. Telematics offers a solution to a number of other problems: in education, by allowing university departments to be situated at great distances from each other and indeed from the students; in health, by allowing remote medical consultation and diagnosis; in diverse areas of administration, by allowing, for example, bills and taxes to be paid by electronic transfer.

Where the islands develop and attract new industries, energy requirements will increase. Many are well placed to research new methods of energy supply, such as renewable sources which can help reduce dependence on imported energy and also protect the environment. This includes the development of wave, geo-thermal, solar and wind energy. Nearly all the Community's islands have a potential for development of renewable energy supplies which could allow them to become self-sufficient in energy by the year 2000.

Footnotes

- 1 *From the database CORINE (Coordination of Information on the Environment) of the European Commission.*
- 2 *Ibid.*
- 3 *European Investment Bank and World Bank (1990), The environmental programme for the Mediterranean.*
- 4 *Ministerio de Obras Publicas y Urbanismo, Spain.*
- 5 *CORINE op. cit.*
- 6 *European Investment Bank and World Bank (1990), op. cit.*
- 7 *Ministère de l'Environnement, France.*
- 8 *CORINE op. cit.*
- 9 *UNEP (1988), Avenirs de Bassin Méditerranéen, environnement et développement 2000-2025.*
- 10 *La Comunitat Autònoma de Valencia.*
- 11 *UNEP (1988), op. cit.*
- 12 *Ibid.*
- 13 *Ibid.*
- 14 *EBAG (Europäische Aktionsgemeinschaft) (1989), International Konferenz: Studienkreis für Tourismus.*
- 15 *Statistics relating to population and surface area are obtained from the Statistical Office of the European Communities (Eurostat).*
- 16 *The islands are defined in geographical terms (ie surrounded by the sea) and in political terms (ie the absence of centre of political decision-making of major importance). Also excluded are those islands containing a national capital city: London, Dublin, Copenhagen. In case of the UK, the islands are defined as those on the periphery, ie the Scottish islands, the Isle of Wight, etc.*
- 17 *Ernst and Young (1989), The socioeconomic consequences of completing the internal market for the island regions of the European Community. Study financed by the European Commission.*
- 18 *University of the Aegean (1991), Report for a Community programme for the development of islands.*
- 19 *Ernst and Young (1989), op. cit.*
- 20 *Information provided by the Commission des Iles de la Conference des Régions Périphériques et Maritimes.*
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- 22 *Based on Robert J. et al (1985), Etude de transport des îles périphériques de la Communauté: Problèmes et possibilités d'amélioration. Study financed by the European Commission.*
- 23 *Based on European Commission (1990), Proceedings-Symposium: Energy issues in EC islands.*
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**Section E: conséquences
pour la politique à mettre en
oeuvre**

Policy implications

Balanced economic growth and harmonious development in a more closely integrated European Community call for the collective reflection of Member States to identify the opportunities for, as well as the constraints on, the best use of the Community's territory as a whole. The benefits of the single internal market in the Community will not be fully achieved unless the spatial inconsistencies which impede the rational allocation of resources are removed. This collective reflection is particularly necessary in view of the difficult physical geography of the Community, the pressures on its environment, its high average density and uneven distribution of population as well as its wide economic and social disparities. It is also clear, however, that while the geographical disparities are considerable, opportunities are opening up for the economic development of the peripheral regions and for a more balanced use of the

Community's territory. The Community's ability to exploit these opportunities depends to a large extent on a successful response to these spatial problems.

Up to the present, the regional policy of the Community has been mainly concerned with assistance to the weaker regions in the framework of promoting economic and social cohesion. This will continue to be the case. Such efforts will remain important and could be further strengthened in a number of ways some of which have been identified in the present report. The Conference of Ministers in Turin recognized, however, that an effective regional policy should also be based on a coherent view of the Community's territory as a whole.

In the development of this coherent view, the Community must also recognize the differences in approaches to regional and physical planning systems in the twelve Member States as

a result of differing historical, administrative and political traditions. These differences inevitably condition the expectations of Member States regarding the role of the Community in this field, resulting in pressure, on the one hand, for a much more operational approach at the Community level and, on the other hand, for the Community's task to be limited to one of collecting and disseminating information. It is clear that the role of the Community in the realm of spatial development cannot be a substitute for national, regional and local responsibilities, but it can provide an additional policy framework at a Community, or, to some extent, wider European level, in order to facilitate coherence between different sectoral policies as well as inter-regional cooperation.

Two fundamental requirements of this framework concern the need for Community-level exchanges of information together with

processes of consultation, respectively. These requirements are discussed below. In addition, a number of specific areas are identified where there is the greatest need for Community intervention to improve territorial coherence.

Information

The increasing integration of the Community and the growing interdependencies between its regional economies mean that more than ever, authorities within Member States responsible for regional planning cannot discharge their duties successfully without comprehensive and up-to-date information on developments in other parts of the Community. Planning in relative isolation is no longer possible. Information needs take two principal forms.

First, regional planners require comparative socio-economic information to allow them to situate their region vis-à-vis other regions. This would include such information as the demographic and economic situation and prospects in the Community's regions.

The socio-economic structure of the Community is subject to continuous evolution often with far-reaching implications for the use of space. Information must therefore be timely as well as accurate. The Community's reports on the regions might be adapted in accordance with these information needs.

Secondly, planners should have information on the intentions of their counterparts in the rest of the Community on measures planned by the competent authorities, particularly major infrastructures where the effects go beyond national boundaries. Similarly, developments affecting wider aspects, the environment, for example, are often of common interest to several Member States.

A system of monitoring and updating geographical information will be established in cooperation with Member States. To this end, the Commission could draw on the expertise of the research institutes in Member States concerned with regional planning. The information should where possible, and where necessary, refer to a wider geographical space

than that represented by the 12 existing Member States of the Community.

The Commission will contribute through the continuing development of its geographical information systems. It will also continue its research effort on spatial relationships at the European level through a series of trans-regional and spatial impact studies, some of which are already underway. This work will be undertaken in consultation at the regional and local level through the Consultative Council of Regional and Local Authorities as well as through seminars and expert groups.

Committee on Spatial Development

Exploiting to the full the information collected and disseminated requires an appropriate system of consultation. The establishment of procedures of consultation between Member States and the Commission would give the competent authorities the

opportunity to discuss the information and provide a forum where possible conflicts might be resolved and complementarities promoted.

Consultation on such matters should be organized through the establishment of a Committee on Spatial Development involving the Member States and the Commission. Discussion would not be restricted to matters internal to particular sectors such as transport, environment, telecommunications, energy, etc, but extend to consider their inter-relationships, and their impact on territorial development in the future.

In a forward-looking perspective, the discussions of the proposed Committee would need to be conducted with reference to a number of guiding features which are likely to characterize economic and social development in the coming years:

- First, economic activity is becoming less tied to particular geographical locations. This is occurring at a time when many regions in the traditional development centres of the Community are ex-

periencing high social costs of economic growth — congestion, pollution, etc — and when, under the right conditions, regions outside the development centres of the Community can expect to attract new enterprises and employment. The regional policies of the Community are aimed at promoting the creation of these conditions in weaker regions. These policies could, however, be strengthened in a number of important respects, which use to advantage the increasing mobility of modern enterprises, in order to promote a more balanced distribution of economic activity in the Community as a whole. Deserving of particular attention are those regions which combine dependence on a narrow economic base — often a single activity — with unfavourable conditions for diversification. The development of human resources in weaker regions is a particular priority.

- Secondly, the Community will have to con-

sider the consequences of major demographic changes which are in prospect. The population of the Community is ageing rapidly which will affect the relative weight of social expenditure on education and health. In education, a growing emphasis on the retraining of the adult workforce will be necessary to ensure the continuity of supply of qualified labour and to avoid labour shortages. Insofar as further immigration occurs, and especially if this is concentrated in inner city areas as in the past, there will be a need to adapt infrastructure and to improve facilities for the reception and integration of migrants. This has implications for housing as well as education and training.

- Thirdly, economic imbalances in the Community are reflected in severe pressure on the infrastructure in the congested, densely populated agglomerations which is particularly acute in the case of road transport. Opportunities to increase road capacity in these areas are limited.

The need for restraining measures — and the development of alternatives such as the railways — are increasingly urgent. Increased charges for road use are likely. Part of the solution for easing congestion in the centre, as well as an essential precondition for the development of the periphery, is the improvement of currently inadequate centre-periphery transport links. This means investment in new connections and making the optimal use of air and maritime transport and new technologies such as the high-speed train. The development of the capillary connections is also necessary to improve access within regions to the main networks and to link rural areas to urban service centres.

- Fourthly, new developments in information technology and telecommunications offer new opportunities to integrate the Community's territory. In practice, however, the benefits may accrue principally to the development centres. The Community should consider widening its ef-

orts to support investment in telecommunication networks in areas where their commercial return is only assured over the longer term.

- Fifthly, the Community must set its economic objectives in terms of sustainable development. Economic development in the 1990s should take place in a way which avoids further deterioration to the environment while attempting to rectify the damage of the past. Particular efforts are required to resolve the problem of how to dispose of waste and how to preserve the Community's important natural areas. In regions favourably endowed in terms of climate and/or landscape, the maintenance of a clean and attractive environment is a strong positive feature for the attraction of new activity.
- Sixthly, to become or remain competitive, regions require a secure supply of energy at favourable prices. The development of a single market in energy calls for the strengthening and integration of trans-

mission networks on a Community-wide basis, in addition to efforts to develop local and renewable energy sources, to ensure that all regions are adequately served.

- Finally, establishing a coherent view of the development of the Community's territory taking into account the particular features outlined above requires a new emphasis on planning and cooperation in planning. Consistent with the principle of subsidiarity, planning is a matter for national, regional and local authorities but cooperation between planners, especially at inter-regional level, is increasingly required. Moreover, the Community must have a vision of its future development which makes best use of all its resources.

Specific Areas of Community intervention

A number of possibilities emerge for specific actions

which the Community could support, covering the whole of the Community territory. These would contribute to the more balanced use of this territory overall and at the same time reinforce economic and social cohesion and integrate more fully the periphery. Such interventions must not undermine the principle of concentration of resources to the less-developed regions. When implemented outside eligible areas preference will be given to the use of alternative financial instruments rather than grant aid.

Frontier developments

With the decreasing significance of the Community's internal frontiers, new opportunities are opening up for border areas. The development of such areas, physically integrating them into a single European market, is an example par excellence of an issue of Community importance. At present, the Community is mainly engaged in support of actions for border zones which are eligible under the Community's regional policies. However, not all border areas are eligible, and where this factor can be shown to

inhibit increased opportunities for fully integrated planning and development, it may be appropriate to consider the case for extending Community assistance beyond eligible areas.

Problems will remain in relation to external frontiers where there is no mandate for actions on the other side of the border. There are considerable problems in these areas, notably the bottlenecks at border crossings to the countries of Central and Eastern Europe. Support for actions on the other side of the border should be developed with the involvement of the Community's budget for external relations, for example, the PHARE programme, subject to such actions being accorded priority by the third countries concerned.

Cooperation between regions and cities

There is a role for the Community in supporting the awareness of, and participation in, Community wide networks of economic cooperation, especially for the less-developed regions and cities. "Widening the hori-

zons" of regional and local actors is one of the keys to successful economic and social development. To this end, it is necessary to raise resources and standards in the less-developed regions, to improve their access to information and provide other support in creating links with more developed partners in areas of mutual interest. Technology transfer and economies of scale could thus be achieved and joint investment projects undertaken. Such cooperation could help cities and regions reduce the cost and improve the range of public services.

Missing Links: Centre-periphery connections

The completion of transport, telecommunications and energy networks in the Community is essential to reduce the effects of geographical peripherality. Missing links include those among the peripheral regions themselves, as well as those which link these regions to the central parts of the Community. In the case of the latter, it may be necessary to provide appropriate support for infra-

structural investment in more prosperous regions where there are demonstrable benefits for weaker regions.

The cities

Some of the Community's most acute problems associated with lack of economic opportunity, low incomes and a generally poor quality of life are found in larger cities and urban areas. At present, there is no Community policy relating to the problems of urban areas as such, although assistance is being made available towards the development and restructuring of many of the most seriously affected areas under Objectives 1 and 2 of the Structural Funds.

Urban communities are, however, confronted with problems beyond the purely economic (eg in the transport, environmental and social domains). Even in the relatively favourable economic circumstances of the late-1980s there appears to have been a growth in the physical segregation of rich and poor in many cities. In some cases this is associated with immigration from third countries. With the removal of internal barriers to movement, the settlement patterns and integration of immigrants is becoming a Community issue. It may therefore seem appropriate that the Community should take more responsibility for problems of urban poverty and deprivation.

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