tion of rivers and lakes. Pesticides continue to pollute surface and ground water, reduce biodiversity and find their way into the food chain. Pollution of ground water will be a long-term problem, as the natural regeneration of this resource is extremely slow.

(269) The use of land for urban development and transport in the EU continues to harm the environment through, for example, loss of high quality arable land, destruction of biotopes and fragmentation of eco-systems. In some regions there are increasing spatial conflicts between additional housing requirements, commercial developments, agricultural use and protection of open space. On the other hand, there are 2000 km² of derelict industrial sites in Europe, which are, however, unevenly distributed. Reclamation costs are estimated at 100 billion ECU. This is a huge potential of areas for housing development which avoid further urban sprawl in the catchment areas of large cities.

(270) A specific form of land use which presents special challenges to spatial development strategies of cities and metropolitan regions, and also rural regions, is waste disposal sites. Despite the application of waste avoidance strategies, the amount of waste in the EU has increased. As far as quantity is concerned, the most important sources of waste are agriculture, industry, households and mining. The proportion of hazardous waste has greatly increased.

(271) In a number of Member States there are moves to introduce integrated waste management as well as separate waste collection and recycling. Nevertheless, waste recycling in the EU is still taking place on too small a scale.

(272) Despite modern techniques and more stringent provisions, waste disposal continues to result in the discharge of pollutants into soil and ground water (e.g. at disposal sites), produces CO₂, methane and toxic gases, and leads to emissions of dioxins, hydrochloric acids and mercury (e.g. during waste incineration).

(273) Modern methods of waste management, waste avoidance and waste disposal are also part of a sustainable spatial development policy. This includes the objective of tackling waste problems in their own regional context and avoiding waste transportation (in particular transportation of toxic waste and nuclear waste) over long distances.

(274) Natural disasters, which not only alter the landscape quite suddenly as a result of forest fires, earthquakes or storms and substantially increase soil pollution but can also in some cases have disastrous ecological consequences, represent a further strain.

2 Spatial Development Issues of European Significance

2.1 Trends Towards Change in the European Urban System

(275) The EU is characterised by a high level of urbanisation and strong regions. Nevertheless, only around a third of the population lives in major metropolitan areas. In contrast to other continents, spatial settlement patterns in the EU are characterised by rural areas that are relatively densely populated. About a third of the population lives in small and medium-sized cities outside the agglomerations. The decentralised history of Europe - characterised by independent nation states, many of which in turn originated relatively late from smaller regional states - has favoured the emergence of a strong polycentric urban system. A complex web of large, medium-sized and smaller cities has arisen, which in large parts of Europe form the basis for urbanised spatial structures even in agricultural areas. Technological, political, social and economic changes have an impact on the urban system - on its functions and on the spatial context.

2.1.1 The Emergence of Urban Networks

(276) For urban and spatial development, these changes present a great challenge. The urban system and the settlement structure of the EU are not likely to change fundamentally in the medium term. Global cities such as London and Paris and metropolitan regions such as the Ruhr and Randstad will continue to maintain their pre-eminent positions. New functions and networks may, however, in future have a major impact on the development of individual cities and regions. Cities are increasingly co-operating and pooling their resources, for example by developing complementary functions or sharing facilities and services. Such co-opera-
tion can be advantageous for regional development because it improves the range of services offered and the economic conditions of the region and thereby increasing its competitiveness.

(277) Co-operation between cities and regions is also increasingly to be found across borders. Co-operation is, however, conditional on the partners having equal rights and similar areas of competence. Differing political and administrative systems can therefore represent a barrier to cross-border collaboration. Initiatives such as Saar-Lor-Lux (Saarbrücken, Metz, Luxembourg) and Tornio-Haparanda on the Finnish-Swedish border demonstrate, however, that cross-border co-operation is possible and can be successful.

(278) Another factor which makes co-operation between cities and the achievement of synergy effects necessary but difficult is the great distances in sparsely populated areas. Sweden, for example, has had positive experience of linking medium-sized cities by high-speed trains in order to concentrate their economic potential and capacity in the area of training.

2.1.2 Changes in Urban Economic Opportunities

(279) Competition between the cities and the regions for investment is increasing, and for some the maintenance or re-establishment of competitiveness is a major and important challenge. Many cities will have to develop new economic potential. Old industrialised cities and regions must continue their process of economic modernisation. Cities and regions which depend too heavily on a single economic sector, such as public administration, tourism or port functions, must try to widen their economic base. Some cities in rural or peripheral regions will find it difficult to secure and develop their economic base. Even in peripheral regions, however, there are certainly cities which are sufficiently strong and attractive to pull in investment for themselves and their surrounding areas. Cities which assume special gateway functions can, in particular, exploit their peripheral position to very positive effect.

(280) Cities and regions which know how to exploit their own economic opportunities and potential do not do so at the cost of others but, on the contrary, can strengthen the world-wide competitive position of the EU. In this sense, competition is very positive. It is important, however, that competition between cities, regions and Member States is socially inclusive and environmentally responsible. Unconditional competition “using all available means” will dam-

2.1.3 Continuing Urban Sprawl

(281) Because of the growing number of households and average residential space per capita, demand for residential accommodation and building land continues to rise. In many cities, new housing has been provided in existing residential areas or on new sites. In many cases, this was done in a planned and orderly fashion, but sometimes it was relatively uncontrolled. Uncontrolled growth results in increased levels of private transport; increases energy consumption; makes infrastructure and services more costly; and has negative effects on the quality of the countryside and the environment. In addition, increasing prosperity in many areas has fuelled the demand for second homes with the result that many locations can now be described as “weekend towns”.

(282) In many urban areas in the EU, development pressure on areas surrounding cities has become a problem (see Fig. 15). It is therefore necessary to work together to find sustainable solutions for planning and managing urban expansion.

![Fig. 15: Urban Expansion](image)
growth. In some countries in the Union, particularly where land is scarce, innovative steps have been taken in urban planning. These include the “compact city” approach in the Netherlands; approaches such as “land recycling” in the United Kingdom and Germany; or “target group” approaches to satisfy housing demand from specific social groups.

2.1.4 Increasing Social Segregation in Cities

(283) Growing differences in income and lifestyles are reflected in different needs in terms of housing and residential location and in different possibilities for satisfying these needs.

(284) Living conditions in cities are, for example, often considered unsuitable for the needs of children. For families with children, suburban areas often offer a better quality of life than central city locations, and the dream of a “home of one’s own” can often only be realised there because of the large price difference. Many middle-to-high income families therefore move out of the city. Poorer families and immigrants are concentrated in the inner cities and on large public sector housing estates. Other central residential areas attract young people and students, while others attract higher-income and two-income families.

(285) Social disintegration or segregation is not a problem in itself. But where economic disadvantage, unemployment and social stigmatisation come together in areas which in addition are often characterised by cultural and ethnic differences, and which demand especially high integration efforts from their inhabitants, the risks of social exclusion is reinforced. It is necessary to address these problems not only because they are widespread in Europe but also because they underline the importance of the social dimension in the sustainable development of urban areas in Europe. In order to find a successful solution to the problem of poverty, social exclusion and ghettoisation, it is particularly important to reduce long-term unemployment. Some Member States have successfully attempted to do so with integrated, multisectoral programmes for economic regeneration and development of disadvantaged city areas.

2.1.5 Improvements in the Quality of the Urban Environment

(286) Most cities have introduced measures to combat environmental problems such as noise, air and water pollution, traffic congestion, waste production and excessive water consumption. However, the quality of the environment is still in need of further improvement in many city areas. In addition, urban development measures have often diminished the historic fabric of many cities and eroded their identity. This not only has a negative effect on the quality of life and the health of their inhabitants but can also have an economic impact due to loss of attractiveness and reduced investment, employment and municipal financial resources.

2.2 The Changing Role and Function of Rural Areas

2.2.1 Increasing Interdependence of Urban and Rural Areas

(287) The future of many rural areas is becoming increasingly related to the development of urban settlements in rural areas. Towns and cities in rural regions are an integral component in rural development. It is essential to ensure that town and country can formulate and successfully implement regional development concepts in partnership-based collaboration. However, the rural-urban relationship in densely populated regions differs from that in sparsely populated regions. In densely populated regions, the areas with rural characteristics are under substantial urbanisation pressure, with all the side effects of increased density, including the negative ones. These include pollution of soil and water, fragmentation of open areas and the loss of rural character. Some traditional rural functions such as extensive agriculture, forestry, nature conservation and development, for example, are highly dependent on a high degree of continuous open countryside. A key function of spatial development is, therefore, to achieve a better balance between urban development and protection of the open countryside. Urban and rural areas are closely interconnected, especially in densely developed regions. Rural areas benefit from the cultural activities of cities, while the cities benefit from the leisure and recreation value of rural areas. Town and country are, therefore, partners rather than competitors.

(288) Less densely populated rural areas, particularly if they are further away from metropolitan areas, have a better chance of retaining their rural character. In many regions, however, many small-scale development measures to improve the agrarian structure and settlement patterns have had a negative impact on the environment and, in particular, on the quality of the landscapes. In many rural areas in the peripheral regions of the EU, migration threatens the viability of public and private services. The natural and
cultural heritage of these endangered rural areas are key assets which can form the basis of economic and social regeneration initiatives, based on sustainable tourism and recreation, among other things.

2.2.2 Different Lines of Development in Rural Areas

(289) A major contribution to the cultural, natural and topographical diversity in the European Union is made by the rural areas. Their function is not just as a suburban trading area for the cities nor is it dependent on just agriculture or tourism. It involves more than ensuring food production and resource conservation. On the contrary, rural development in Europe involves a wide variety of spatial trends, schemes and influencing factors. Many rural areas have successfully passed through the process of structural change and developed independently. In the realisation of the goals for European spatial development, not only the large cities and urban regions but also the rural areas are very important. Achievement of a decentralised polycentric settlement structure will be greatly assisted if the socio-economic function of rural areas can be stabilised, secured over the long term or established. The possibility of access to infrastructure and knowledge is a key factor. With good infrastructure facilities and with access to information, rural areas have potential in terms of economic attractiveness and diversification. Rural areas are also especially important for the development of the natural and cultural heritage.

(290) Rural development also means, however, that many regions continue to be confronted by substantial structural weaknesses. These structural weaknesses can be aggravated by natural factors such as a peripheral location and difficulty of access (islands, mountain areas, etc.) or unfavourable climate (Mediterranean areas, extremely sparsely populated areas in Northern Scandinavia, etc.), (see Map 11). In these areas, agriculture as a source of income is often still very important, but with a relatively poor competitive position. Diversification, plurality of activity and securing alternative sources of income are goals which are hard to achieve without assistance and the exchange of experience. We must wait to see how far the new information and communications technologies can promote decentralised development in rural areas. There are some promising approaches, e.g. in the Scottish Highlands, where small and medium-sized enterprises have obtained access to information and communications technologies with government support, and can tap into global markets.

2.2.3 Shifts in Agriculture and Forestry - Consequences for Economy and Land Use

(291) The gradual reform of European agriculture in the face of liberalisation, cuts in public spending and environmental considerations is set to continue. According to estimates, between 30 % and 80 % of agricultural land could be taken out of agricultural production. The leading position of agriculture as the basis for regional development, the economy and employment will, however, continue in a certain number of regions.

(292) Some regions can remain competitive through increased intensification of agriculture. This is supported by production methods which lead, in an extreme form, to an agriculture based on logistics and the application of technology rather than understanding of an area’s natural capacity. While this approach raises productivity (at least in the short term) and increases the competitiveness of the EU agriculture industry it can have negative effects: employment opportunities decline, pollution levels rise, biodiversity is reduced and landscapes become increasingly standardised.

(293) Other regions are looking to diversification of their economic base by developing alternative activities such as forestry and rural tourism. Diversification tends, therefore, to be most successfully developed in those rural areas with the right environmental conditions and attractive landscapes, well located in relation to centres of population as, for example, in the South of Germany, the centre of France and many areas in southern Europe. Another long-standing example of successful rural diversification which is not close to centres of population is provided by crofting in the Highlands and Islands of Scotland. In this context, part-time farming is becoming increasingly important.

(294) A third way in which rural areas react to shifts in agriculture is through extensification of production. This can also involve a range of agri-environmental measures such as biological production. For example, since 1990, the area of Austria under organic farming has increased from 22,500 hectares on 1500 farms to 250,000 hectares (7.5 % of the farmed area) on 18,000 farms in 1996. There is also a growing area of organic farmland in Germany, Sweden, Finland and the Netherlands.

(295) Marginalisation occurs when farming ceases to be economically viable. Marginalisation can have a positive impact on the environment and the landscape by opening up the possibility of other forms of land use such as forestry. On the other hand there can be negative aspects including
the possible exodus of workers from the agricultural sector; increased risk of soil erosion and forest fires; and deterioration in the quality of the landscape. Marginalisation therefore could undermine the basis of regional economies, for instance in the Alps and the Apennines.

(296) The changes in agriculture underline the diversity of rural developments, which provide more opportunities than risks to the EU’s regions. Intensification opens up possibilities for investment and leaves space for other activities. Diversification can lead to incomes that are less dependent on subsidies and open up new opportunities for nature conservation and landscape protection and alternative sources of income. Marginalisation and extensification may, in some areas, improve the prospects for nature protection and afforestation.

2.3 Transport and Networking

(297) The European transport and communications infrastructure originated predominantly in a national context. Today this legacy is still evident in many parts of the EU. Future transport and infrastructure policy must take greater account of the objectives and policies of the European Community and collaboration between the Member States. Important aspects are liberalisation, increased efficiency, environmental friendliness and integration of sub-networks.
2.3.1 Border and Integration Problems of the Networks

(298) Although the Single Market and Community transport policies have reduced the impact of national borders on the infrastructure network, the presence of these borders is still very evident in terms of inadequate, underdeveloped or even missing links and services. Difficulties continue to be experienced because of physical features such as mountain ranges. In the case of railway services, technical differences between railway systems remain - for example, in relation to signalling, safety and power supply. Organisational problems and national protection of the railway companies create barriers to desired integration. Further deregulation, technical standardisation of systems and competitive pricing will continue as these are prerequisites for the development of a coherent and efficient transnational railway network. Cross-border bottlenecks can also be found on inland waterways. Improvement in the integration of these waterways into a multi-modal transport system will involve considerable investment. In other words, major technical, financial and political/organisational tasks still have to be dealt with before the EU has an integrated infrastructure network.

2.3.2 Increasing Transport Flows and Congestion

(299) A major European transport policy issue is the continuing increase in freight and passenger traffic. In 1992, intra-EU-12 trade amounted to a total of some 10 billion tonnes of goods.\(^64\) With enlargement in 1994, the start of EMU and the opening up of Central and Eastern Europe, this figure is now considerably higher. Although the volume of movement within countries is still far greater than between countries, the share of international transport is growing more rapidly. As most transport still only covers short distances, road transport is by far the most important mode. The longer the distance to be covered, the more other forms of transport become competitive alternatives.

(300) Increases in transport flows have been most pronounced in those parts of the EU which already experience the greatest amount of congestion. Many additional bottlenecks have, therefore, arisen in the transport network, particularly in the urban regions and high-density areas, with hindrances to both passenger and freight transport and both short-distance and long-distance movements. Congestion costs time and money and impairs the quality of life and environmental conditions. Congestion is evident even in major transport corridors such as the Rhine and Rhône corridors or at border-crossing points into Poland.

(301) At present, the potential development of combined transport for freight is limited; under current market conditions, it is not competitive with road transport, except for crossing natural barriers such as the Irish, Ionian and Baltic Seas and the Alps. Short sea shipping is, however, insufficiently developed.

(302) For passenger travel, conditions and present trends are more favourable, especially for combining air travel and high-speed trains. There is a relatively high amount of short-haul air travel in the EU, consuming a disproportionate amount of energy per passenger kilometre. For example, 60% of flights in and out of Amsterdam are for distances less than 800 km.\(^65\) High-speed trains are already replacing short-haul European connections, for example London - Paris or London - Brussels. This trend will continue as further high-speed transport links are completed. New rail lines are not always necessary because wheel-on-rail technology also allows high speeds to be reached on existing lines. If present train speeds could be increased by 30% and a travel time 50% greater than air travel time were acceptable to travellers (particularly because of time-consuming travel to and from the airport), more than fifty European city pairs could be served by high-speed trains.\(^66\) Such combined strategies would also relieve airports. But there are limits to air/high-speed train substitution; even at more than 300 kilometres per hour.

2.3.3 Inadequate Accessibility in the EU

(303) Good accessibility of European regions improves not only their competitive position but also the competitiveness of Europe as a whole. Accessibility in other parts of Europe is poor, which can make these areas less attractive for many types of investment. Islands, border areas and peripheral regions are generally less accessible than central regions and have to find specific solutions (see Map 12). Countries like Sweden and Finland, for example, have developed a well-planned system of regional airports with good connections to Helsinki and Stockholm, which guarantees access on a European scale. As Central and Eastern Europe open up, the regions along the present Eastern border of the EU will require a central position within the Community. With the exception of improvements in Germany, the infrastructure networks in these areas still reflect the old political borders. It is essential that gaps in these networks are closed and links between the cities and regions are reestablished.

(304) Even within areas which are regarded as less accessible at the European level, accessibility varies considerably. Larger cities, linked to more than one international
network - airports, ports, HST-railway links - are more advantageously placed than small- and medium sized cities in these areas. Connections between larger and smaller towns are therefore extremely important in reducing disparities in accessibility. The same applies to the areas in central Europe, which will also have to ensure that there is a good secondary network to complement the trans-European networks under construction.

The improvement of accessibility does not, in itself, guarantee further economic development in these areas; suitable development strategies must also be in place to support this. Improved accessibility will expand the hinterlands of the economically stronger areas. The newly accessible economies will have to compete against the large firms and the competitive services in these economically stronger areas. Competition may well benefit the stronger regions more than the newly accessible weaker ones. Improvements in accessibility need to be considered along with other sectoral policies and integrated strategies.

2.3.4 Concentration and Development Corridors

Infrastructure networks often have the effect of strengthening the functions of existing industrial centres. Large networks bring the danger of reinforcing concentration, as investors may be discouraged to settle in areas poorly linked to major networks. For this reason, “development corridors” are increasingly emerging in Europe. These corridors, which are developing particularly in rela-
tively urbanised areas, are often transnational or cross-bor-
der, and therefore require an integrated spatial planning ap-
proach that also goes beyond purely national policies. The
concentration trend does not just apply to road and rail; it is
also evident in air transport. Connections to other contin-
ents are very much concentrated in the central areas of the
EU. Liberalisation seems to be leading to a further increase
in the concentration of scheduled intercontinental flights in
Northwest European hub airports, even though congestion
of the air space is already very high.

(307) According to a recent European Commission publi-
cation, 90% of the EU’s trade outwith the Community is
by maritime transport. In Northwest Europe there is a
concentration of large seaports which account for most of
Europe’s international sea links. The functional hinterlands
of these ports cover practically the whole of the European
territory and overlap considerably. These ports are in strong
competition with each other and are constantly striving to
improve their individual positions. But a greater degree of
co-operation could bring spatial and environmental bene-
fits. Many ports in the Atlantic and Mediterranean areas do
not have the favourable hinterland connection enjoyed by
the North Sea ports, so their chance of becoming intercon-
tinental transport nodes tends to be small. These ports, how-
ever, play an important role in their regional economies
and many of them can improve their potential as European
short sea shipping ports. Both Atlantic and Mediterranean
ports have seen a substantial increase in traffic in recent
years. The development of North Africa and Asia could
further enhance their economic function as gateways to the
EU and stimulate development in the hinterland of these
ports. This could have a major impact on spatial develop-
ment in Europe. Greater use of maritime transport would
also ease the burden on land transport in Europe. The geo-
physical position of the “EU peninsula” could be better ex-
ploded in this way.

2.3.5 Disparities in the Diffusion of Innovation
and Knowledge

(308) A phenomenon with a potentially enormous spatial
impact is that of telematics. The combination of new radio
and television technologies, cable technology and a policy
of liberalisation offer new potential services such as tele-
education, tele-medicine, tele-working and tele-conferenc-
ing. These “electronic marketplaces” theoretically allow
people and enterprises to become less location-based in
their behaviour. The resultant opportunities for more re-

tote areas may be very significant, provided the skills ex-
ist to take advantage of these opportunities. Further devel-

opment of these “infostructures” and telecommunications
is potentially an important force for closer integration and
the promotion of enhanced competitiveness for the cities
and regions of the EU. The impact of “infostructures” on
spatial development cannot yet be forecast in detail. It
would seem that they will supplement conventional infra-
structures rather than replace them and they can support
and reinforce each other. Regions that have excellent access
to “infostructures” and traditional infrastructure networks
are therefore at an advantage.

(309) Despite considerable progress, developments in tele-
matics have been slower in the cohesion countries (Greece,
Ireland, Portugal and Spain) than in other parts of the EU
(see Fig. 16). In all regions of the four cohesion countries,
major investment has gone into telecommunication systems. Digital exchanges and fibre optic links are reduc-
ing disparities in provision. In 1999, a substantial propor-
tion of the regions in these countries will have efficient
systems, although organisational improvements may also
be needed to ensure that the benefits of the investment feed

Fig. 16: Internet Sites

per 1000 Inhabitants July 1998

Source: OECD from Network Wizards and Imperative Data
through into more competitive call charges. Knowledge, education and training are becoming an ever more important foundation stone for economic participation and success. Regions with limited or unsatisfactory access to information and knowledge, because of a lack of further education, research and training facilities, are likely to have problems in maintaining population and, in particular, getting people with higher education and more advanced skills attached to the region. This could reinforce population movements to areas that are already well endowed with infrastructure, increasing pressures on these areas while reducing the prospects for better living standards in economically weaker regions.

2.4 Natural and Cultural Heritage

(310) The diversity as well as the preservation of the natural and cultural heritage in the EU is threatened. The increasing threat to this heritage appears to be negating the progress which has been achieved in recent years in the fields of nature conservation and protection of historical monuments. It is important to realise that the wide diversity of Europe’s natural and cultural heritage presents both risks and opportunities. The main types of endangered area, such as coastal areas, mountain ranges, mud-flats, reservoirs, woodlands and cultural landscapes, are at great risk throughout the whole of Europe.

(311) Coasts with their great diversity of sensitive biotopes are of major importance for human living space, for tourism and transport, for industry and energy production and for agriculture and fishing. They are generally threatened by urban construction, mass tourism, the excessive use of fertilisers and pollution. Mountains provide habitats for wild animals and plants and are the source of fresh spring water. They are not only important natural areas, but frequently also significant economic and living areas. Mountain areas in the EU are in many cases threatened by growing mass tourism, dams and new transport routes and by overgrazing, erosion and non-cultivation. Mud-flats, rivers and lakes have vital ecological functions and are unique repositories for archaeological finds. The number, size and territorial integrity of mud-flats is being severely reduced through drainage, cultivation, sinking of the ground water level, reduced water flow and new transit routes. Rivers are being straightened, their flood patterns are being restricted and dams are being built. Woods and forests, as the “green lungs” of Europe, contribute to the conservation of water and land resources and generally to the beauty of the landscape. They are also an important habitat for flora and fauna and provide recreation areas for people. The main hazards for the woodlands are air pollution, insect and fungus infestation and forest fires. It should not be forgotten that almost all areas which are regarded as endangered are areas with cities, residential locations and infrastructure, in which people live and work.

(312) Soils are the basis of life and provide living space for people, animals and plants and are therefore an essential component in the natural balance. The richness of different soil types in Europe is explained on the one hand by the diversity of natural factors, but at the same time it documents the wide differences in the natural and cultural history of Europe. Soil is a decomposition and neutralisation medium for the natural material cycles, and almost all food for people, animals and plants relies on the fertility of the earth. The diversity of soil types and their natural functions are, however, greatly threatened by human activity in many areas.

(313) Moreover, climate is a part of the environment, of the natural resources, suffering more than ever from the negative impacts of human activities. Increases of gas responsible for the greenhouse effect, caused by humans, modify temperature and the distribution of rainfall. This leads to shifts of arable areas, endangers flora growth and increases both periodicity and intensity of bad weather.

2.4.1 Loss of Biological Diversity and Natural Areas

(314) Europe is still characterised by a rich and varied nature and wildlife, despite the pressures to which it has been subjected. In recent decades, international initiatives and increased public awareness of the value of this natural heritage have led many countries to develop policies to protect it in various ways, for example by:

- giving defined areas legal protection,
- land purchase by the public sector and non-governmental organisations, for example for the establishment of rare biotopes,
- assisting private owners in establishing environmentally friendly land use.

(315) Common criteria for areas eligible for protection are their level of vulnerability, their uniqueness or rarity and their value in terms of scientific information. In many Member States, this has led to the protection of extensive natural and landscape areas. At the European level, EU directives on birds and habitats have helped to conserve and protect areas of pan-European importance.
A significant threat to this heritage is the spatial fragmentation of protected areas. The effectiveness of nature conservation in some protected areas is dependent on the appropriate management of the surrounding areas. A well-co-ordinated spatial development policy across the various administrative levels, including participation of the public, can assist in protecting habitats and ecosystems, thereby reversing the loss of biodiversity. The initiative to create a European network, Natura 2000, is an example of this at the European level. However, to be successful it will need to command the understanding of all partners to see the contribution that protection of Europe’s natural heritage can make to sustainable development. In this context, the European Commission emphasises, in a communication to the Council and the European Parliament, the essential role of spatial planning for the preservation of species diversity and sets out how spatial planning can contribute to both the preservation and sustainable management of ecosystems.

2.4.2 Risk to Water Resources

Pollution and overuse of both surface and ground water is a Europe-wide issue which can extend across national borders. Intensive agricultural use, partly as a result of Community agriculture policies, continues to contribute to serious ground-water problems. In some regions, rigorous water conservation policies have succeeded in reducing pollution by industry and private households. The water quality in the Rhine, for example, has improved significantly over recent years. There are still areas, however, where pollution of ground and surface water means that higher-specification water uses, e.g. as drinking water or for recreation, are severely impaired.

The quantity of water resources throughout the EU is uneven. But all Member States have sufficient resources to meet their needs. There is a geographical and seasonal distribution problem. In southern Member States, the dry period is the season of highest demand. Here - and also in some northern Member States - aquifers and ground water levels show a seasonal lack of capacity.

An important contribution can be made by an integrated spatial development policy both in preventing floods and in combating water shortages. Although these two phenomena are of differing political and territorial significance, they are nevertheless important in terms of sustainable spatial management. Water shortages and floods are not always chance phenomena in the EU. In principle, they both represent structural problems resulting from inadequate adaptation of spatial development. The frequency with which a number of European rivers such as the Rhine, Moselle and Po overflow their banks has increased in recent years. Floods have resulted in substantial damage to private property and the economy. High water is caused by a variety of factors, most of which are of man-made rather than natural origin, e.g. the straightening of rivers, settlement of natural flood plains and land uses which accelerate water runoff in the rivers’ catchment areas. The most recent flood disasters in Europe demonstrate above all that:

1. dikes and other technical flood control measures do not give a 100 % guarantee of safety; and
2. settlements and other uses sensitive to flooding create substantial and increasing potential for damage and loss in flood-prone areas.

Even in the drier regions of the EU, where rain occurs episodically but very intensively, there has been more frequent flooding in recent years. In Spain, for example, this has caused substantial damage. Integrated, sustainable management of land use and water in the entire catchment area of rivers represents an important response to this problem. There is a wide variety of flood types. Floods in the major catchment areas (e.g. on the Rhine-Meuse, the Danube and the Oder) are caused by intensive and prolonged rainfall. Flash floods are caused by heavy local downpours, which is also true of flash floods (as in some areas in the South of France over recent years) which are primarily triggered by unforeseeable meteorological events. To prevent the damage caused by such incidents, what is required in terms of spatial development policy is that land use in the entire catchment area is aimed at reducing runoff and that, in the potential runoff and flood areas, it is reviewed and changed as necessary. Independent of this, technical flood control measures and disaster control measures by the water management bodies are essential in order to keep the damage to a minimum.

The problem of water shortages in individual parts of the EU is different. The water volume problem is primarily attributable to the geographical and chronological irregularity of rainfall, which does not cover the peaks of water demand. An additional special case, typical of the Mediterranean, is the locally concentrated need for water for agricultural irrigation and recreation purposes. In the Mediterranean countries, the main consumer of water, for example accounting for 63 % of consumption in Greece, 59 % in Italy, 62 % in Spain and 48 % in Portugal. The Mediterranean area is one of the main destinations of world tourism, and tourism - and also the service sector - places substantial additional demands on the water cycle.
Experience in recent years shows that without the integration of water management measures into the process of land management and management of settlement development, neither a sustainable and efficient use of water nor flood prevention can be achieved. Flood prevention in the major European river catchment areas can only be made effective through the imposition of clear conditions and intervention in land use. Similar comments apply to the reduction of water shortages. Sustainable management of water resources means establishing effective control over the various uses of water through planning and economic instruments. This applies, in particular, to agricultural irrigation and non-wasteful use of water in industry, commerce and private households.

2.4.3 Increasing Pressure on the Cultural Landscapes

The way in which local and regional communities through the centuries have dealt with their environment and cultivated the land, has resulted in a rich diversity of landscapes and land use (see Map 13). They help define the identity of different regions and their diversity represents an important element of Europe’s cultural heritage. But they are not just of biodiversity, historic and aesthetic value; they are also economically important. A distinctive landscape can be used to promote the qualities of an area for attracting new industry, for tourism and for other types of economic investment. The threat to cultural landscapes in the EU is closely
related to the rationalisation and intensification of agricultural production and the objective of agricultural “extensification” in some areas. In other parts of the EU, marginalisation tendencies are evident. In addition, the expansion of cities and isolated settlements, consisting primarily of second homes, threaten cultural landscapes.

(324) Destruction of landscapes is not always dramatic. In some areas it is occurring gradually and almost unnoticed. It can be difficult to develop a specific protection policy for these landscapes, because it is the whole composition, not individual elements which provide the value. Landscapes are also inextricably linked to land uses; they cannot be isolated. With the assistance of spatial development strategies, however, it is possible to avoid utilisation methods which are damaging to cultural landscapes and to contain or eliminate the negative effects. In addition, clear strategies mean that spatial development of the cultural landscapes can be influenced: desirable land uses are defined and others precluded.

2.4.4 Increasing Pressure on Cultural Heritage

(325) The EU’s cultural heritage is of major historical, aesthetic and economic value to local, regional and national communities. It relates both to individual objects such as monuments, buildings and archaeological sites and to historic town centres and villages. The quality and diversity of this heritage is of great importance for the EU, for Europe and for the world as a whole. The economic value of this cultural heritage lies not only in tourism but in the ability to attract investment. Urban tourism accounts for approximately 30 % of European tourism, and is expected to grow at a rate of 5 % in the years ahead. This is considerably higher than the growth rates of traditional coastal and mountain tourism, estimated at 2 % and 3 % respectively.

(326) Important cultural sites, such as historic cities are subject to constant decay. Currently old street patterns and historic buildings and sites are sufficiently protected. But other areas of a town might suffer from the demand to exploit that value. Some cities, such as Venice, Florence and Bruges, are dominated by tourism to such an extent that they have reached the practical limit to fulfilling this function. Many historic town centres, particularly in metropolises such as Athens and Rome, are also suffering from pollution as a result of their metropolitan functions. Less historic but nonetheless attractive townscapes which are consequently less strictly protected are also under pressure from property market speculation, standardisation of buildings and facades and the need for improved accessibility. Many conservation measures have been undertaken by the national and local authorities during recent years. Spatial development strategies which integrate the different approaches in various areas can help reduce the growing pressures on the cultural heritage.