The challenges facing European society with the approach of the year 2000

Transborder co-operation within sustainable regional/spatial planning in central Europe

Reports and conclusions of the colloquy
organised by the Council of Europe
in the framework of the European Conference
of Ministers responsible for Regional Planning (CEMAT)

Vienna, 31 March-1 April 1993

European Regional Planning, No. 55

Council of Europe Press, 1993

French edition:

Les défis pour la société européenne à l'aube de l'an 2000: la coopération transfrontalière dans le cadre de l'aménagement durable du territoire en Europe centrale

ISBN 92-871-2288-1

Publications appearing in the same series:

The challenge facing European society with the approach of the year 2000: strategies for sustainable quality tourism

ISBN 92-871-2133-8

The challenges facing European society with the approach of the year 2000: the outlook for sustainable developments and its implications on regional/spatial planning

ISBN 92-871-2214-8

Strasbourg, Council of Europe, Publishing and Documentation Service
ISBN 92-871-2289-X

Printed at the Council of Europe

TABLE OF CONTENTS

FOREWORD

The European Conference of Ministers responsible for Regional Planning (CEMAT) met for the first time in 1970, and has since been trying to contribute to the gradual implementation of a European regional planning policy. The European Regional/Spatial Planning Charter adopted in Torremolinos in 1983 defines the major Europe-wide objectives that should underlie policies for regional planning, improvement of the quality of life, and the organisation of human activities in Europe.

The increasing internationalisation of not only the economy but also all the other factors which shape our lives and prepare the lives of the citizens of tomorrow's Europe, is ruling out an exclusively national approach to the problems of regional planning.

At its last session in November 1991, CEMAT adopted a programme of activities directed towards an analysis of long-term trends and developments in terms of policies, economics, ecology, etc. In a constantly, rapidly changing world, forward planning is an absolute necessity for government officials, even if forecasts are sometimes wrong.

Implementation of this programme of activities should help to provide the people and bodies responsible for decision-making with the elements they require to take the right decisions for the future.

The quest for strategies to co-ordinate the various sectoral policies and actions which take into account the rights of future generations and the fact that many of our natural resources are limited and often irreplaceable, is the mainstay of the work of CEMAT and its Committee of Senior Officials, responsible for preparing its work.

The main theme of the next session of CEMAT is: "Strategies for sustainable regional/spatial development in Europe beyond the year 2000".

This colloquy focused on the analysis of problems inherent to transfrontier co-operation in central Europe and on possible solutions in a perspective of sustainable regional/spatial planning.

OPENING ADDRESS

by Mag. Brigitte EDERER
Austrian Minister of State for Integration
and Development Co-operation

Ladies and gentlemen,

It is my pleasure to welcome you most cordially on behalf of the Federal Chancellor, Dr Franz Vranitzky.

Austria feels greatly honoured to host a seminar in Vienna, which deals with the issue of transborder co-operation in regional planning and regional development for the first time since the major political changes in Central and Eastern Europe within the framework of the European Conference of Ministers for Regional Planning (CEMAT) and the Austrian Conference on Regional Planning (ÖROK).

I am therefore particularly pleased to welcome the chairman of the CEMAT Committee of Senior Officials, Mr Neumann, as well as the representative of the Council of Europe, Mr Bassi, along with all seminar participants here in Vienna.

During the time when Europe was divided into a Western and an Eastern hemisphere, Austria was considered an "island of the blessed", situated in between two major blocs which adhered to two different systems. Dr Bruno Kreisky, the former Federal Chancellor, spoke of Austria's gap-bridging policy between East and West as the "Austrian way". The political map of Europe has been drawn up anew. New opportunities and new challenges have arisen for Austria's policy-makers.

Austria's political and economic arena is characterised by her application for membership in the European Community, by the ongoing negotiations with the EC about the terms of such membership and by Austria's new relationship with the countries in transition of Central and Eastern Europe, which are in the process of reforming their economic and political systems, in particular our neighbouring countries the Czech Republic, Slovakia, Hungary and Slovenia.

For decades, Austria has been pursuing a policy of European co-operation. This policy was based on the understanding that frontiers - even open frontiers - must not be an obstacle to common developments and that international and bilateral problems can be tackled by joint and concerted action only. An early alignment of plans and activities will avoid unilateral, adverse developments in some European countries and in the bordering regions of neighbouring states and, concurrently, will enable a joint exploitation of opportunities for development.

Based on this understanding, Austria, as a member of the Council of Europe, the OECD and the future EEA, and a potential future member of the EC, is striving to implement the conception of a new and larger Europe, which would include the countries undergoing reform. When the EC and EFTA Ministers of Finance meet in April 1993, Austria will support the joint EC/EFTA aid programmes for the countries now undergoing reform. The current aid delivered by the Republic of Austria to the countries in transition of Central and Eastern Europe within the framework of its technical aid (ZOR) is a natural consequence that ensues from this policy.

The new political and economic situation in Europe poses new problems and challenges to regional development and regional policy at the national and all-European levels.

1. The profound changes in Central and Eastern Europe and the bloody conflict in the former Yugoslavia have far-reaching consequences, both in Europe and internationally. Austria is one of the countries affected most strongly; while on the one hand it now has the opportunity to penetrate new markets in the countries undergoing reform - even though the future perspectives may be uncertain for the time being - it must, on the other hand, assert itself vis-à-vis new competitors on the market.

This holds true not only for the border regions, but for all of Austria's industrial sites. Increasingly, labour-cost intensive productions are transferred from Austria to the countries in transition.

The massive influx of people from the East seeking work, and the many refugees, pose a serious problem in terms of immigration which requires particular efforts on the labour and housing markets to ensure their social and economic integration.

2. Transit traffic will no longer be concentrated in a North-South direction, but will increasingly flow from East to West, imposing a strain on Austria. In order to preserve a sound environment and to maintain an efficient economy, all countries in Europe must engage in close co-operation to solve the problems of transit traffic.

3. Austria's active involvement in the process of Western European integration has forced some sectors of the economy, which have enjoyed wide-ranging protection on the Austrian market up to now, to adapt to the new requirements. The areas most affected are the services sector, agriculture and the food industry. However, one should not overlook the fact that even today, much of Austria's economy is widely integrated in the international economic setting.

In view of the new framework conditions, Austria will set a number of priorities in regional planning and regional policies in the context of European integration, eg:

Membership in the EEA and the European Community necessitates an adjustment of regional policy instruments and new forms of organisation and co-operation. The EC Trade Practice Rules require a re-orientation of subsidisation policies. Once Austria has been admitted to the EC, these restrictions will be counterbalanced by the opportunity to draw on EC development funds for the benefit of Austria's problem regions.

While paying greater attention to national and international interdependences and to a potential shift in regional priorities, the economy in marginal and disadvantaged rural areas and in Austria's traditional industrial regions needs ongoing support.

Transborder relations with our neighbouring states must be strengthened. Negotiations on the establishment of bilateral regional planning commissions are currently under way with the Czech Republic, Slovakia and Slovenia.

A good working relationship has already been established with Hungary within the framework of the Austro-Hungarian Regional Planning Commission. In March of this year, this commission adopted a recommendation on transborder co-operation with regard to innovation and technology transfer centres and a recommendation on traffic.

If the development of an environmentally compatible European transport and traffic network is to open up new opportunities for the regions, care must be taken to avoid mega-centralisations in Europe by implementing a regionally balanced network. The regional distribution networks should therefore be effectively linked to the central network, while the economic framework conditions would have to be attuned to the requirements of a new, environmentally sound, European transport and traffic policy.

The expected migratory flows should be structured and channelled in a way that reconciles the interests of the local population and that of the migrants in an acceptable compromise.

The areas reserved for settlement and the natural resources must be used more economically. The natural environment in general needs to be better preserved and protected. In Austria, this concerns mainly the Alpine regions which fulfil a vital ecological function for Europe.

Throughout the many years of its activities, and based on the diverse experiences of its member states, the European Conference of Ministers for Regional Planning, CEMAT, has accomplished a number of tasks and adopted recommendations that hold promise for the future. In recent years, the EC has recognised regional planning in Europe as a multi-dimensional task. The new situation in Europe has given a fresh and dynamic impetus to regional development and regional policies in Europe.

One cannot tell where regional planning in Europe will ultimately stand. Many different actors and interests have a say in charting its course. What is important for Europe, though, is that the aim of the Council of Europe, the EC and all other organisations involved in regional planning and regional development and of their co-operative efforts should be a new quality of regional planning at the European, national and regional levels.

Today and tomorrow, this seminar will provide us with an opportunity to discuss transborder and integrative European co-operation in regional planning and regional policies under different aspects and different headings.

The seminar's outcome will constitute a significant contribution for the next European Conference of Ministers for Regional Planning to be staged in Norway in 1994 and for a new quality of regional planning and regional policies in Europe.

Along these lines, I hope that this meeting will be conducted successfully and wish you a pleasant stay in Austria.

INTRODUCTORY STATEMENT

by Mr Egon MATZNER
Austrian Academy of Sciences
Research Unit for Socio-Economics
Vienna

The reports presented at this colloquy refer to a variety of cases of transborder co-operation. The cases in their turn are the result ("epi-phenomenon") of different socio-economic and politico-cultural contexts. A typology is suggested which allows each case to be discussed against a background of specific socio-economic dynamics. By way of abstraction, four types of transborder co-operation (in short: TB-Coop) can be defined:

Type 1: TB-Coop at the European level.
Cases in point are all-European planning efforts with respect to railway, highway, waterway and air traffic.
Model: "*Großraumordnung*" as suggested by C. Schmitt (1939).

Type 2: TB-Coop between regions of similar, above-average levels of productivity and income (Rich-rich, see Fig. 1).
Case and **model**: Upper Rhine region

Type 3: TB-Coop between regions of similar, below-average levels of productivity and income.
Case: TB-Coop between the Czech and Slovak Republics (Poor-poor, see Fig. 2).

Type 4: TB-Coop between regions with huge differences in productivity and income (Poor-rich, see Fig. 3).
Cases: East-West TB-Coop between regions situated alongside the former "iron curtain", from the North to the South, including the centre of Europe.

The four types of transborder co-operation relate to three different socio-economic contexts. This means that the situational logic induces the acting persons and units to behave quite differently, as game theory and historical evidence have taught us. Without dwelling on these lessons, it will be interesting to see whether the typology suggested allows a fruitful discussion of the ideas which the participants in this important colloquy will present.

Not even at the beginning of this colloquy is it a venture to state that regional/spatial planning which claims to be sustainable, could not be successful under Type 4 conditions. At least not in a competitive world, such as in Central Europe. What could be planned in its place is a variety of semi-colonial exchanges. Are these sustainable? To learn the lessons which the 20th century is so rich to offer in this sense is a "challenge facing European society with the approach of the year 2000", which appears to be identical to that of "sustainable regional/spatial planning in Central Europe". To be sustainable, TB-Coop has to reduce the huge differences in the levels of productivity and income in the border regions.

The crucial questions to be answered, therefore, are:

Can *laisser-faire* policies bring about a reduction in the huge differences? Or is it, once again, a market-based reconstruction programme like that after the second world war, only this time for the former centrally-planned countries, that is needed? Or, would governance of markets, like that practised in Japan and the "Four Little Tigers", be a better way? Or do you believe that transborder spatial and regional planning will do the job, as in TB-Coop of Type 2 (Fig. 1)?

Let us hope that the specific and supplementary reports, as well as the discussion, will shed some light on these questions, which are of great importance to us inhabitants of Central Europe.

Fig. 1: TB-Coop of Type 2

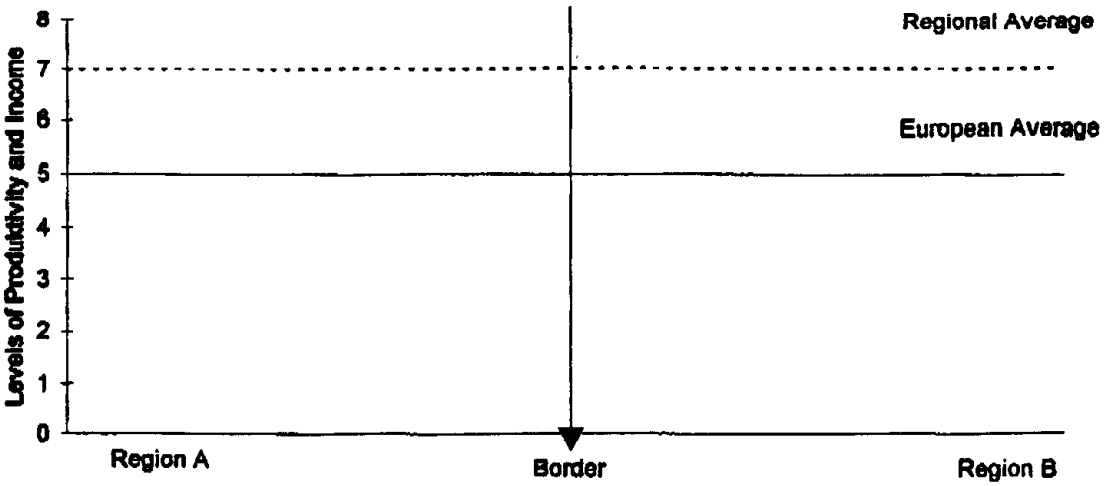


Fig. 2: TB-Coop of Type 3

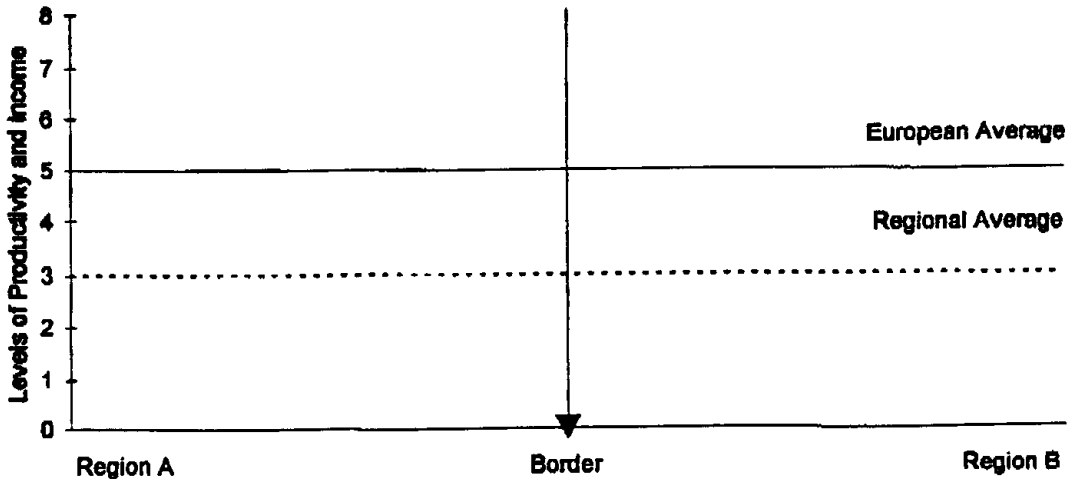
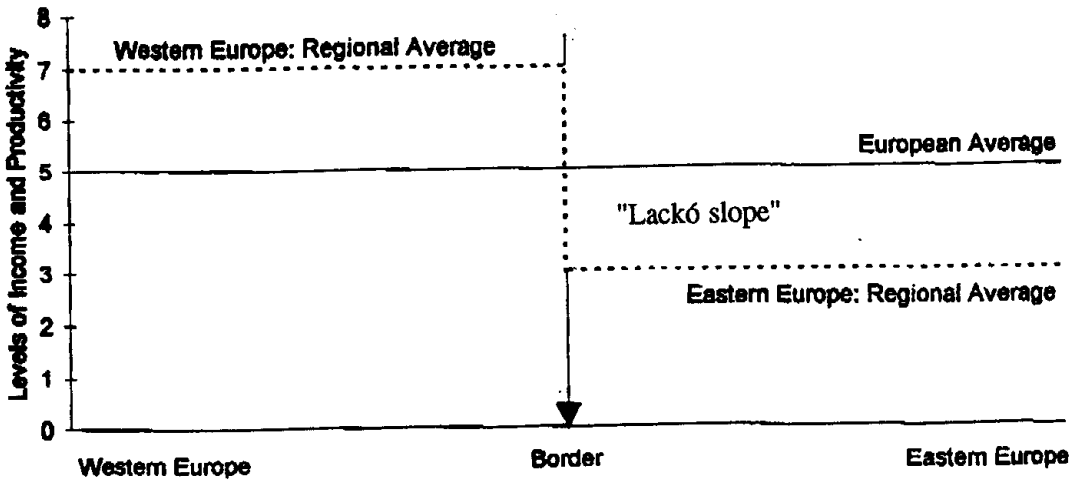


Fig. 3: TB-Coop of Type 4



THEME 1

1st Part

NEW DIMENSIONS IN EUROPEAN REGIONAL/SPATIAL PLANNING: PROBLEMS, MEASURES AND PROSPECTS IN THE FIELD OF REGIONAL/ SPATIAL PLANNING IN CENTRAL EUROPE AND ITS INTEGRATION INTO EUROPEAN WIDE TRANSBORDER CO-OPERATION

CHAIRMAN: Dr Ulrich STACHER
Federal Chancellery
Vienna

REPORTS PRESENTED BY:

NEW DIMENSIONS IN EUROPEAN REGIONAL/SPATIAL PLANNING: PROBLEMS, MEASURES AND PROSPECTS IN THE FIELD OF REGIONAL/SPATIAL PLANNING IN CENTRAL EUROPE AND ITS INTEGRATION INTO EUROPEAN-WIDE TRANSBORDER CO-OPERATION

Introductory report:

Central Europe within European-wide regional/spatial planning considerations

Mr Michel FOUCHER
Geographer
Professor at the Université Lumière Lyon II
Director of the Observatoire Européen de Géopolitique
(European Centre for Geopolitics)
Lyon

INTRODUCTION

Before our very eyes, a new geography of the continent of Europe is beginning to take shape. This is in fact the onset of a long-term process. Apart from inertia, which accompanies any change in spatial configuration, due account must be taken of the constraints inherent in the territorial and productive structures inherited from the centrally-planned economy of the past half century, as well as of the rhythm and ups and downs specific to the economic and socio-political transition now under way.

The need to envisage long-term change will foster national and European policies on regional/spatial planning; such policies will have a twofold aim - to correct the old and new spatial imbalances within each state and to make it easier to weld the two parts of the continent together again.

Observation of changes since 1989 reveals the eastern half of the continent to be more differentiated today, in 1993, than it used to be, owing to differences in the rhythm of economic and political transition. The economic depression so characteristic of central and eastern Europe over the last four years, as reflected in a marked fall in GNP, is an unavoidable stage in the process of making productive structures leaner and fitter. In some states this has gone hand in hand with the emergence, at varying speeds, of new structures, centred around private initiative and multilateral assistance, and completed by channelling exchanges towards the West. In other states, particularly those which came into being after 1989, political crises are having the opposite effect of blocking reform. The Balkan crises are barring the way for European projects for regional/spatial planning in south-east Europe.

The eastern half of the continent is now dancing to a contradictory beat: on the one hand reform and the green shoots of convergence with Western Europe; on the other, crises and a backlog of delays in reshaping the territorial map of Europe.

Faced with lasting differentiation in central and eastern Europe, devising wide-ranging projects for regional/spatial planning on a European scale would seem a tricky task. Nevertheless it is advisable to abandon the task of constructing a realistic future. In the

short and medium term, it would seem urgent to work with those states and regions whose heads have clearly opted for the strategic choice of enlarged European integration by the end of the century, ie Central Europe in the strict meaning of the term, Bulgaria and Romania.

In this introductory report, we felt it useful first to review the state of affairs at the beginning of the wave of democracy, since territorial areas are endowed with strong inertia which must not be neglected when devising new strategies. Secondly, the principal spatial implications of transition in areas unaffected by severe, lasting crises will be analysed on a central European scale. We shall then examine the same issues at national level, using specific examples. Lastly we shall review the outlook for the future, emphasising the stabilising role which concerted regional/spatial planning may play in geopolitical terms.[1]

I. INITIAL STATE OF AFFAIRS: THE TERRITORIAL HERITAGE OF A HALF CENTURY OF CENTRALLY PLANNED ECONOMY

The half century of the old regime has left a permanent stamp on territorial areas. The Soviet period introduced four fundamental rifts, which still shape the countryside, into an initially diversified context - since northern central Europe, embracing Saxony-Anhalt, Berlin, Silesia, Łódź-Poznań and Bohemia, had already been transformed by the first industrial revolution, to the extent that a state such as Czechoslovakia was ranked eighth in the world in 1938, on the strength of its industry.

a. Growth was largely founded on **industry**. Industrial geography concerns two distinct types of region. About half of them predate 1945, and are sited in the three states of Northern Middle Europe, within a broad triangle running from Łódź and Warsaw to Halle, Prague and Budapest. Then there are national and regional urban centres such as Zagreb, Braşov, Brno, Györ and Poznań. The densest industrial concentrations are found in Upper Silesia and in the sprawling crown of Budapest. On the other hand, there are the new industrial sites created after 1945, either close to mineral deposits or in regions where there was a surplus of rural labour.

The new industrial regions were often sited as close as possible to the Soviet border and in eastern regions: the Ekostahl steel complex at Eisenhüttenstadt was located on the left bank of the Oder River as a symbol of the new relationship between the DDR and Poland; Nowa Huta opposite Kraków, Košice in Slovakia and Galati on the Lower Danube in Romania reflected concerns about defence and development based on the supply of raw materials imported from the Soviet Union, eg iron from Krivoy Rog and Kursk. The same considerations applied to Kremcikovi, near Sofia, and Dunaújváros on the right bank of the Danube downstream from Budapest.

Considerations of defence, this time in a context of national self-sufficiency or anti-Soviet protection, explain the industrial growth of Bosnia (Zenica, Sarajevo), of Skopje (Macedonia), of Niksic (Montenegro) or of the Albanian complex of Elbasan. The policy of national self-sufficiency has led to major industrial complexes being located in the immediate vicinity of reserves of raw materials, such as lignite at Cottbus in the DDR and at Konin between Poznań and Łódź in Poland, copper at Legnica-Glogów in Silesia and natural gas at Pulawy-Lublin in Poland.

b. Integration into the Soviet production system took the form of the creation of **networks** (railways, electric power lines, gas and oil pipelines) which in turn spawned refineries and petrochemical plants along their path: Leuna and Schwedt in the DDR, Plock to the north of Warsaw, Záluži to the north of Prague and Bratislava, Leninváros in north-east Hungary and Szazhalombatta to the south of Budapest.

The division of labour under the Council for Mutual Economic Assistance (Comecon 1949) introduced productive specialisation by state, in line with the civil and military needs of the USSR.

c. In parallel, **urbanisation** advanced rapidly after 1945; almost 60 new towns were built close to industrial sites. Twin towns, such as the proletarian Nowa Huta opposite the historic, catholic capital Kraków, the cities of Ostrava and Braşov, Halle-Neustadt, Nowe Tychy, New Belgrade, Novi-Zagreb, Titograd, Quyteti Stalin. New towns such as Gheorghe Gheorghiu-Dej in Moldavia, Dunaújváros in Hungary, Dimitrovgrad to the east of Plovdiv. A uniform urban landscape, made up of long, prefabricated buildings dotted around open spaces, and modelled largely on Soviet towns. Industrial towns, towns for workers, designed as showcases for new regimes and laboratories for new social relationships.

In addition, the strategic regions of the central European theatre of conflict housed over 50 garrison towns, with dozens of military bases and training camps. The maximum density was attained in the DDR, around Berlin, in Brandenburg, Mecklenburg and Saxony.

1. Questions of demography and migration will not be tackled within the somewhat restricted framework of this report.

d. The **collectivisation of agriculture** led to a complete redistribution of land in six states out of eight, and a partial redistribution in the western and southern regions of Poland and the plains of Northern Yugoslavia. Co-operative farms, state farms and agro-industrial undertakings worked on huge farms.

In addition, the introduction of industrial activities into the countryside, the political control of the growth of large urban centres and the housing shortage combined to create a considerable mass (one-quarter to one-third of the rural population) of non-farmers living in the countryside and commuting into urban centres daily or weekly (as around Budapest).

The Soviet period created "black countries" which now have to be restructured or redeveloped, taking into account a characteristic feature of such regions: the great diversification of production, such regions rarely being dependent on a single industry. Another urgent task will be to change their highly negative impact on the environment. The urban heritage is severely damaged and the immense suburbs and monotonous new towns impose high maintenance costs. The industrial regions having links with the former USSR, which were part of an effort to redress the regional/spatial balance, today find themselves a long way away from western markets and, like the "black countries", are discovering unemployment. They are often the first regions to be affected by the introduction of the rules of a market economy.

The Soviet partner has ceased to be the mandatory, attractive partner. The time has come to rechannel flows towards the West, but the new states which have arisen from the ashes of the USSR are still suppliers of energy and clients for products which have no other markets.

The considerable efforts made to disperse activities within federal states, for example in Slovakia after 1978 and in Yugoslavia since 1945, have helped to spread out modern industrial activities without tempering regional inequality, without slowing down migration, without holding dissatisfaction in check and even without preventing the collapse of these states.

Another heritage is the political and **administrative pattern** of spatial organisation. The former regimes did not apply a single model of administrative organisation. However, the majority of existing territorial authorities and administrative structures were created by communist regimes. Only the Hungarian counties survived changes in the regime.

The only spaces where it is possible to identify strong regional authorities, resembling the French, Italian or German regions by their size, are the former republics of federations now dissolved. The nine Bulgarian regions set up in 1988 were merely an attempt to control local administrations. The other states of Central Europe are therefore characterised by an organisation on the lines of counties/municipalities.

Many reforms of local administration have been imposed. They were one of the favoured means of attempting to adapt and export the model of a planned economy to the states of Central Europe.

In 45 years the number of levels, and the size and role of territorial units have been changed three or four times in each state: in Albania in 1949, 1953, 1958; in Bulgaria in 1947, 1949, 1959, 1977, 1988; in Hungary in 1949, 1984; in Poland in 1954, 1975, 1983; in Romania in 1950, 1960, 1968, 1974, 1981, 1988; in Czechoslovakia in 1949, 1960, 1968; in Yugoslavia in 1950, 1952, 1955, 1967, 1974, 1989.

As a complement to sectoral planning, which imposed the centralised management of all economic activities, the administrative pattern was supposed to help control the implementation of the plan. The instability of the scale and pattern of regional/spatial management clearly reflected the intentions of the communist powers - intentions which were often contradictory in nature - to set up a hierarchical network of administrative control, whilst at the same time preventing the formation of local authorities with true local roots. A new factor of political and administrative organisation was introduced with each change in the level and size of administrative units. The new units were often presented as a means of combating the bureaucracy of medium-sized towns, and were accompanied by denunciations of territorial or county feudalism. The hierarchy of towns was modified, and new or industrial towns became administrative centres in order to bolster their influence and give them more weight in relation to "bourgeois" centres. The statistical reading of the territory was confused as far as a reduction in territorial inequality went, as in Bulgaria.

Successive waves of reorganisation reduced the number of levels of local administration from three to two (Bulgaria in 1959, Romania in 1968, Albania in 1953, Hungary in 1984), reinforcing the role and often increasing the size of municipalities or basic units, which were given formal autonomy. Intermediate levels of authority saw their powers limited to monitoring or planning functions. The reduction in the number of levels, the abolition of the higher level and the increase in the powers of smaller units enshrined the centralised organisation of the state.

More radically, the reforms of the 1970s sought to rationalise both regional/spatial management and the distribution of activities and population.

"Systematisation" in Romania (1974) and the "systems of population" in Bulgaria (1977) were attempts to set up true regional/spatial planning, combating the "rigidity" of territories. Reduction in the number of local authorities, mergers of municipalities, rationalisation of economic activities, all these reflect the basic principles of a Soviet model of regional/spatial management (reform of local authorities in 1926, creation of agro-cities).

The reforms of the 1980s, which represented an attempt to mitigate the economic, social and political crisis, introduced a tentative decentralisation of economic management and gave territorial authorities greater powers, in an attempt to reinforce representativeness and grass-roots participation at the level of the basic units. This was clearly one of the aims of the reforms of 1983-84 in Poland following the proclamation of martial law, and of the local reform of 1988 in Bulgaria.

Soviet regional/spatial planning has therefore had a lasting impact. It is in this context that a new, powerful factor of spatial transformation will intervene, namely economic transition, a corollary to the process of democratisation.

II. GEOGRAPHY OF POLITICAL AND ECONOMIC TRANSITION THROUGHOUT CENTRAL AND EASTERN EUROPE

Transition is not limited to the introduction of market rules. A market without a state is merely a black market; a market economy without an administration would be merely a Mafia economy. This points to the importance of establishing states ruled by law and of administrative reforms.

a. Administrative reforms since 1989

All states of Middle Europe are in the midst of territorial reorganisation. In the wake of German unification the *Länder* were restored, replacing 14 *Bezirke* (districts). The states which have arisen from the Czechoslovak and Yugoslav Federations will have to change their local legislation.

Elsewhere, the first needs have been met, from 1990 onwards, by legislation concerning electoral arrangements for the councils of territorial authorities and concerning the powers of such authorities. Municipalities have been given wide-ranging autonomy and extensive powers. The number of municipalities is increasing, or to be more precise, municipalities which were summarily merged are being split apart again. Municipal elections have been held in Poland, Hungary, Czechoslovakia, Romania and Albania. The ratification by Hungary, in April 1992, of the European Charter of Local Self-Government promoted by the Council of Europe is the symbol of this municipal renaissance in Middle Europe.

Caught between the reorganisation of the activities of the state and the new powers devolved to municipalities, especially in the economic field, the Polish voivodships, the Romanian counties (judeţ), the Hungarian counties and the Czechoslovak districts (since 1990 regions have been no more than statistical and electoral units) are left today with weak resources and few powers and are not managed by representatives elected by direct, universal suffrage. The second period of territorial reorganisation will involve a profound change at this level of management and will probably involve creating more extensive regions based on historical ties.

b. A space which is becoming increasingly differentiated under the impetus of the market

It is important here to make a distinction between the definition of substantial trends applying to all states, and the consideration of variations in the rhythm of transition.

An examination of some of the criteria of transition reveals the following picture, as at the beginning of 1993:

- The rechannelling of exchanges towards the West and OECD countries, at the expense of the former Comecon bloc, is a general movement even though the total volume of exchanges is falling because of the recession. A movement more rapidly followed in Poland (48% in 1991) or Hungary (over 61% in 1991), it now extends to countries such as Bulgaria, which still has many links with the former USSR: OECD countries represented 50% of Bulgaria's exchanges in 1992, against 29% in 1991, with the share of the former Comecon countries falling from 57% in 1991 to 37% in 1992. There is a similar situation in Romania, where exchanges with OECD countries represented 45%-47% in 1991.

Yet severe economic constraints still weigh heavy on the Baltic states, where 85% of exchanges are still made with the former USSR (energy).

- The private sector's share of productive activity is increasing everywhere, the record being held by Poland (over 60% of the working population, and almost half of GNP in 1992). However the share of the private sector is difficult to calculate since it also includes a sizeable parallel economy (reckoned by Morgan Stanley to be between 15% and 37% of Poland's GNP).

- Multilateral financial assistance to projects exceeded 6 billion ecus as at mid-1992; 56% of this sum went to Poland, 28% to Hungary, 19.5% to Romania and 16% to Czechoslovakia, with the CIS receiving only 11.6%.

- Association agreements with the European Community were concluded by five central European states; agreements with EFTA are under way.

- Lastly, the development of exchanges with the OECD area reflects the importance of geographical proximity. Although the market constituted by the states of central and eastern Europe represent 3%-4% of Germany's exports, 5%-9% of Austria's exports and 2.5%-3.3% of Italy's exports, these being the three principal partners, the figures are less for states situated further west (1.2% in the case of France, the fourth partner, and 0.8% in the case of the United Kingdom).

In all, four different types of geo-economic and geo-political situations can be identified:

- four states, Poland, the Czech Republic, Hungary and Slovenia, have begun their transitional period well; they are all frontier states with the EEC/EFTA bloc and it is here that transfrontier co-operation is by definition the most meaningful;

- in three states transition lags behind because of political constraints (parliaments are slow to adopt privatisation measures): Slovakia, Romania, Bulgaria;

- in the newly independent states of the former USSR, whose status is still uncertain, there is greater resistance to reform and industrial structures remain unchanged, priority still being given to heavy industry as the foundation of development: Russia, Ukraine, Belarus, the Baltic states;

- some states are in the throes of severe political crises, either actual or looming: transition is not a priority and economic disaster reigns: Croatia, Bosnia, Serbia, Macedonia and, in part, Albania.

Any political crisis delays transition and rapprochement with the EEC/EFTA bloc. Moreover, the possibilities of catching up will depend on the economic starting point. It is estimated that countries whose starting point is equivalent to half the average income of the EEC would have to experience growth rates of 7% per annum over 15 years, or 6% per anum over 20 years or even 5% per anum over 30 years in order to bring them up to the level of the average European income. Such growth is within the grasp of the states of Central Europe, on condition that the social consensus is maintained and that external political risks do not interfere with transition.

III. THE GEOGRAPHY OF TRANSITION ON A NATIONAL SCALE: NEW REGIONAL DISPARITIES

It is also important to envisage the geographical impact of transition within each state. The work of the Observatoire Européen de Géopolitique (European Centre for Geopolitics) (see reference list) shows that "winning regions" and "losing regions" are gradually emerging within states.

The main criteria of identification are: the unemployment rate; the destination of foreign investment; the level of facilities and services; geographical position; accessibility of markets; industrial tradition; and on the other side of the scale, the amount of remedial work to be done. A first analysis shows that the capital cities and western regions (in Poland, Hungary and the Czech Republic), frontier regions (in Hungary), regions which are advantageously located along routes of European interest, and areas with a strong industrial tradition are the first to benefit from transition and from injections of outside capital. New regional disparities are thus emerging within each state, with some towns and regions benefiting and others being severely affected. The unemployment rate is one of the most objective criteria for measuring such disparities; for example, it is almost unknown in Prague and exceeds 17% in eastern Slovakia.

For a more thorough analysis, we need to highlight the changes specific to each state. This report will restrict itself to three case studies.

a. The case of Poland

First point to note: the regions which received investment under the communists are not in the best position for transition. Take the case of Silesia, where production dependent on a single industry has left the population facing stagnation and unemployment. Regions such as the north-west (with Poznań), which escaped radical transformation by the former regime and where the traditional balance between different industrial sectors remained untouched, will be quicker off the starting blocks. Worse placed are those regions which on the surface benefited from deliberate industrialisation to soak up surplus agricultural labour, regions such as the north-east of Poland, which today are witnessing a massive return of the population made redundant by employers in the industrial regions hit by depression or more simply made redundant by the closure of subsidiaries in the region itself.

Second point to note: in view of the heavy spatial concentration of industrial activities, big centres of production (such as Lodz) and mining regions (Upper

Silesia and the Wałbrzych basin) are facing severe employment problems and have to rebuild their industry. The appearance and spread of unemployment emphasise the presence of pockets of latent underemployment, aggravated by the difficulties facing businesses turned towards the Soviet market (the north-east) and also the formation of potential reservoirs of unemployment in industrial regions specialising in a single industry (Łódź, Wałbrzych, Jelenia Góra), or those threatened by bankruptcies (Radom, Kielce, Gdańsk).

Third point to note: even within the group of privileged regions, those with a more balanced economic structure (primary sector without the hard kernel of sunset industries, a good balance between the secondary and tertiary sectors, a better distribution of the socio-professional structure, etc), such as the regions/cities (Warsaw, Kraków, Poznań), will adapt more quickly to the challenges of the free market than will Łódź, Katowice or Wałbrzych. On the other hand some regions which are lagging behind according to our indicators, such as north-east Poland, may perhaps benefit in future from a good ecological situation (Poland's Green Lung Project, ie a protected zone encompassing Białystok, Olsztyn, Łoma, Ostrolēka, Suwałki). Such ecological development projects might be combined with promising tourist activities.

Fourth point to note: big urban centres acting as cultural, scientific and technological magnets, such as Warsaw and Poznań, seem to be in a better position faced with the challenges of competition and market. In such centres, the forward march of private firms and joint private/public companies, co-operating with foreign capital, is strengthening a diversified, dense economic web. The workings of the market should also give an edge to western regions, from Lower Silesia to Gdańsk, which have a better infrastructure.

It is true that there was less disparity in the spatial distribution of activities and of the population in Poland than in other states of eastern and central Europe. Its network of towns bears witness to this, with 14 big cities of over 200,000 inhabitants, the most densely populated city being not the capital Warsaw (1,651,000) but greater Katowice (2,377,000 inhabitants spread over 16 towns). A second category embraces regional centres with 579,000 to 850,000 inhabitants, such as Łodź, Gdańsk-Gydnia-Sopot, Kraków, Wrocław, Poznań and Bydgoszcz-Toruń, and there are a further six towns with 211,000 to 400,000 inhabitants, Szczecin, Lublin, Białystok, Czestochowa, Radom and Kielce.

There was a reasonable spread of industrial activity throughout the country. Regional variations in the proportion of jobs represented by industry were contained within a range running from 20-25% in the voivodships of the eastern frontier to 40-50% in Silesia and central Poland. Silesia however accounted for almost 33% of all jobs, including 18% in Katowice, followed by Warsaw (7%), Łódź (4.6%), Poznań and Gdańsk (53.3%), Kraków (3%), Kielce and Bydgoszcz (2.9%), with other centres accounting for 40% of the five million or so jobs in industry.

Regional variations in income were fairly low because of the size of the state sector (70% of jobs). However there was one notable exception, the almost 40% higher than average wages found in Katowice, Legnica and Wałbrzych, reflecting the relative advantages won by the well-organised coal and copper miners.

On the other hand, differences in environmental conditions were striking. The Central Office of the Plan had identified 27 threatened zones, covering 11.2% of the surface area of the country and affecting 13.5 million Poles. 80 towns are affected in regions of Belchatów, Bydgoszcz, Toruń, Gdańsk, Łódź, Czestochowa, Tarnobrzeg, Wałbrzych, Legnica-Głogów, Rybnik and Upper Silesia.

As a result of adjustments since 1990, regional disparity is increasing in Poland. This is happening at the expense either of regions dependent on a single industry once heavily subsidised - such as coal, steel and ship building - or of regions such as the north-east and east which are less well situated in relation to the current corridors of growth.

The list of "municipalities threatened particularly by structural unemployment" published in the official Gazette (Monitor Polski, 26 August 1992), included two whole voivodships, Łódź and Wałbzyrch, and sixteen others which were partly affected: Bydgoszsz, Słupsk, Koszalin, Piła and Szczecin in the north-west, Elbląg, Olsztyn, Suwałki, Ostrolęka and Ciechanów in the north-east, Zielona Góra, Jelenia Góra and Kalisz in the south-west, and Rzeszów in the south-east.

Similarly, voivodships which already had a high rate of unemployment correspond, with the exception of Lower Silesia, to rural regions which were deliberately industrialised after 1945 and which are the first to be affected today by the closure of factories and regional subsidiaries.

A second factor of future disparity springs from inputs of foreign capital. Such capital, which initially went to the capital city (services) as well as to Wrocław, Poznań, Gdańsk and Lublin, is helping to push regions further apart. Among their criteria of choice, foreign firms will look at the level of training of workers and supervisors. The proportion of the working population

having a diploma is a measure of this. Compared with an average of 9.7% for Poland as a whole, the percentages range from 17.7% in Warsaw, 16% in Kraków, 13.3% in Poznań, 11.9% in Gdańsk, 11.5% in Łódź, to 9% in Kielce and 7.7% in Silesia (figures for 1988, in OECD 1992). However, new investment in industry has already been spread around, in line with the industrial map inherited.

An additional criterion influencing investors' choice is the position of voivodships and towns in relation to transport routes of European interest which are due to be upgraded: the Berlin-Poznań-Warsaw-Brest route; the Dresden-Wrocław-Kraków-Lvov route; the Gdańsk-Katowice-Ostrava route; the Szczecin-Prague route. The Via Baltica projects lie further in the future.

Three categories of regions are beginning to emerge:

- Urban regions with long-established, diversified industry, with universities and research centres, regions which have already been changed by the growth in private services and jobs and which are well sited on European routes, since the EEC has become Poland's principal client and principal supplier (56% and 50% in 1991), the share of the former USSR having falling to 14 and 11%. These regions are Warsaw, Poznań, Gdańsk and Wrocław. In the case of Kraków, the restructuration of the Nowa Huta steel works, sited there for no reason other than ideology, will be a drag on the voivodship's future. In Łódź, the loss of cheap textile markets in the DDR and the USSR will require an unprecedented effort of modernisation from the "Polish Manchester"; however, its proximity to Warsaw, its cultural and scientific reputation and its political power constitute a solid foundation for successful transition.

- Upper Silesia and the Wałbrzych region are special cases because of their economic and political power, reflected by the "mining lobby" whose interests are threatened by the planned phasing out of subsidies. The 180,000,000 tonnes produced in 1989 attracted a subsidy of $12 per tonne, falling to $7 per tonne for the 150,000,000 tonnes produced in 1990. The lack of subsidies will limit production to be limited to 110,000,000 tonnes, with the loss of 180,000 jobs.

The industrial restructuration plan drawn up by the voivodship of Katowice in 1991 defines three areas of priority, namely ecology, culture and technology, and housing/habitat. As well as restructuring the steel industry and the energy sector and recycling industrial and mining waste, the plan sets out to foster small- and medium-sized enterprises and new technology, and to co-ordinate planning projects. Whether the plan is fully implemented will depend on funding by the state and on European co-operation.

- The future of the less industrialised regions of the north, north-east, south-east and west will depend on opportunities for growth in the agricultural and agro-industrial sectors no doubt partly helped by inputs of foreign capital (German, Dutch and Scandinavian). Tourism might be promoted in the north and north-east, in Mazury. In the long-term, these regions might benefit from the partial opening of borders. Poland, in the midst of economic conversion, would appear today to be a useful partner for Belarus - Poland being its first-ranked supplier and its second-ranked customer - and Ukraine, especially Western Ukraine. New border crossing points have been opened at Terespol, Okopy Nowe and Medyka, and upgraded to cope with heavy local traffic.

In the west, the Oder-Neisse frontier marks a double border, both with Germany and the EEC bloc, although this has not meant that it has become a region with strong growth. Apart from exchanges between Comecon members, past relations with the DDR were limited at regional level to organising the collection of workers for metal-working and electronic factories located on the left bank of the Oder. The economic restructuring of Germany's easternmost reaches is depressing the twin towns of the frontier region and is accentuating the propensity to emigrate. In the long term the Oder region might attract capital under the German promotional plan, particularly in big farms to be rented out. Similarly, recovery in the Czech Republic will boost the port of Szczecin.

The impetus for the bi-national promotional plan for the Oder region has come largely from German capital but it serves Polish interests which are to bolster up a frontier region with a depressed economy.

The will to "air Poland" by promoting all frontier interactions, not only those with West, seems to be the main factor of foreign policy affecting regional/spatial planning.

b. The cases of the Czech Republic and Slovakia

Regional issues have undergone a sea change since 1 January 1993 and it is now a matter of organising two economies and two countries, independently.

Regional inequality between the Czech and Slovak parts of the country, which weighed heavy in the balance in the "velvet divorce", was transformed at the stroke of a pen into differences between two states in respect of development.

The first impact of transition seems to have benefited the Czech Republic far more than it did Slovakia, whose new leaders are hoping to move forward less rapidly

and are hoping to keep a large public sector. Almost 75% of the $100,000,000 of foreign investment since 1989 has gone to the Czech Republic, and over 46% to greater Prague and central Bohemia. Less than 1% has gone to central and eastern Slovakia. In 1992, foreign companies' share in industrial production was 4.4% for the Czech Republic and 1.5% for Slovakia. The first effects on employment are hammering home the inequalities between the Czech Republic and Slovakia. At the beginning of 1992, unemployment in the Czech Republic was 4%, and in Slovakia 12%. Moreover, regional variations in unemployment are substantial: for the Czech Republic it ranges from 1.2% in the city of Prague to over 6% in the Ostrava basin; in Slovakia it ranges from 6% in Bratislava to 20% in the Cadca district, which prolongs the Ostrava basin and is on the Polish border.

According to the Federal Statistical Office, partition will have negative economic consequences - an increase of 5-6 points in unemployment and a delay of at least a year in the return to positive growth, but its chief consequence will be to increase the gap between the economic situation in the Czech Republic and in Slovakia. The two economies have remained unequal. The Czech Republic has 66% of the population but accounted for over 70% of the national product in 1990 - 72% of electricity production, 72% of industrial employment, 98% of motor vehicle manufacturing, 72% of the engineering industry.

In some sectors however, a substantial proportion of production is concentrated in Slovak territory, mainly in the form of big firms set up after 1960, in the period of industrial modernisation - 41% of the chemical industry, almost the entire production of colour televisions and a large share of clothes manufacturing (78% of the textile industry being located in the Czech Republic).

The establishment of a modern industrial structure in Slovakia was based on the industrial investment needs of the Czech state, within the division of labour imposed by Comecon, and was not an attempt to construct a self-reliant industrial structure. A high proportion of industrial production, in the form of big, interlinked installations, was incorporated into a complex chain of exchanges between the two republics before the finished product emerged; this explains the great difficulties and arguments encountered today in calculating each republic's share of the national product.

The industrialisation of Slovakia was more recent, and is therefore, overall, more modern. Nevertheless, although there is a marked difference in the level of obsolescence of industrial assets in terms of the quality of industrial buildings (34% in Slovakia and 42% in the Czech Republic), no significant difference is apparent in terms of the obsolescence of equipment (57.6% and 58.3% respectively).

At the moment of separation, Slovak industry appears more vulnerable. Over 80% of Czech exports originated in the Czech Republic. Moreover, one third of Slovak industrial production was exported to the Czech Republic, chiefly heavy industrial products, chemicals and construction materials. One strategic sector, the power supply of both states, is thoroughly tangled. Slovakia depends on the Czech Republic for its supply of electricity, representing one sixth of its total consumption, and its supply of coal, whereas the Czech Republic needs Slovakia's refineries and its petrochemical industry. The entire supply of gas and oil to the Czech Republic from the former USSR transits via Slovakia, where there are large gas storage installations.

Even before separation, each of the two republics had attempted to introduce measures of diversification, in order to reduce dependence on the former USSR and to stand on an independent footing as regards power supplies. In November 1991, for the first time, Czech gas pipelines were connected to the German gas pipeline network. A new oil pipeline will become operational after 1994, linking the two main Czech refineries (at Litvinov and Krapuly) to Ingolstadt (Austria) and to the Transalpine supply system coming from Trieste. The resumption of normal operation of the Adria oil pipeline, coming from Rijeka in Croatia is the main hope for diversifying Slovakia's oil supplies. Symbolically, the process of making the two republics autonomous is following ancient paths, since Trieste used to be the main port for Vienna and Cisleithania, and Rijeka (Fiume) used to be the port for Budapest and Transleithania.

For Slovakia, the production of electricity is vital. Nevertheless, the principal benefit of the forthcoming launch of the Mochovce nuclear power station, built in co-operation with France and Germany, will be the decommissioning of the Bohunice power station, held to be dangerous. Beyond the power struggle with Hungary, the importance for the Slovak authorities of the launch of the hydroelectric power station at Gabcikovo can be seen as a symbol of autonomy in terms of power supplies.

The prime consequence of this dual transition, opening up borders to the West and limiting exchanges between the Czech Republic and Slovakia, will be to accelerate the reconnection of both new states with the EEC/EFTA states on its borders. In the first instance, this will take the form of improving links and communications between Prague and Germany on the one hand and between Bratislava and Vienna on the other. The Bratislava-Brno-Prague motorway used to be one of the

main corridors giving form to Czech territory. It is now *cut in two by a border.*

c. The case of Hungary

Hungary is one of the states of Central Europe where thinking on regional policies and modern regional/ spatial planning is most advanced. Moreover, the structure of Hungary as a country is that of a single, vast region centred around a single capital, Budapest. The zone of direct, daily links - shopping or commuting - covers almost half the country, on both sides of the Danube. The transition crisis is weakening regional centres such as Miskolc, which formerly enjoyed greater autonomy, whilst the rechannelling of exchanges towards the West is extending westwards the role of Hungarian and foreign customers located in the capital city. The fact that almost 80% of foreign investment is concentrated in and around the capital increases its pre-eminence. Unemployment in Budapest is less than 2%, whereas it exceeds 16% in six counties west of the Danube.

The capital is the sole major junction for traffic between the regions since, as an obligatory point of passage, it accounts for 90% of traffic crossing the Danube. To a great extent, this situation was created by the borders drawn on the map in 1919-20, since the main roads which used to lead to the Hungarian part of the empire were located outside Hungary itself and today serve Southern Slovakia and Western Romania.

This explains the emphasis on the construction of new bridges downstream from Budapest, at Dunaújváros and Szekszárd (requests for tenders were/will be sent out in 1992 and 1993). This will be an essential element in creating a south-west route from Austria to Romania.

The Ministry for Environmental Protection and Regional Development (November 1991) has identified three categories of "regions requiring action" to counteract the heightening of regional disparity since 1989, as revealed by migrations:

- areas which are severely affected by unemployment and which are also under-equipped. These are found in the north-east and south west, encompassing the counties of Nógrád, Heves, Borsod-Abaúj-Zemplén and Szabolcs-Szatmár-Bereg;

- areas where unemployment is growing: Komáron, Veszprém, Fejér and Tolna, Pest and Bács-Kiskun in the centre; Csongrád, Jasz-Nagkun-Szolnok and Hadjú-Bihar in the east;

- the under-equipped areas of the south west, Vas and Zala, and municipalities along the Romanian border;

- areas suffering from heavy industrial pollution (from *Veszprém to Miskolc).*

Overall, priority in terms of granting public subsidies and encouraging private investment (up to 50% of the total vested) is given to counties suffering from multiple handicaps: Borsod-Abaúj-Zemplén, Szabolcs-Szatmár-Bereg, Nógrád and Baranya. 80% of regional development funds go to these counties, to be managed by new regional agencies.

The planned scenarios make a distinction between three types of development:

- "successful modernisation" following a restructuring of the region's productive capacities to enable it to adapt constantly to the constraints of the market: the capital is a case in point;

- "partially successful adaptation", in some sectors (excluding for example mines, 12 out of 32 of which face closure, and heavy industry) albeit still having a high unemployment rate;

- areas which "lag behind", with declining production and rising emigration;

The first two scenarios concern the part of Hungary situated west of the Tisza River. The third describes the situation of the eastern regions, which have been most affected by the loss of markets within the Comecon countries and whose future will depend, to a great extent, on economic stabilisation in neighbouring regions, ie Romania, Ukraine and Eastern Slovakia.

Tourism has been made a national priority. It involves environmental protection plans covering the Maros river, Kecskemét, and the mountains of the north-east, and regional plans covering the special zone around the Tisza lakes, Lake Velencei, Lake Balaton, the Upper Danube Lake, Fertö and its sprawling plain.

With regard to institutions, it can be seen that the administrative unit preferred by the parties in power since 1989 has been not counties but municipalities. Counties have retained only special powers, under the Basic Law of 31 August 1990 on the free administration of local authorities, whilst municipalities have been given general powers. The creation of seven county towns - Budapest, Miskolc, Debrecen, Szeged, Pécs, Veszprém and Györ - as new seats of the state's decentralised administration has reduced even further the importance of the traditional pattern of administration taken over by the communists, ie the 19 counties.

Urban centres with over 50,000 inhabitants have opted for county borough status. Local authorities thus man-

age 15% of Hungary's GNP, a far greater proportion than in Western Europe. Agencies co-ordinating the efforts of local associations are encouraged in order to attract investment. Overall, strengthening the political powers of the municipalities increases centralisation in cases where the municipalities do not engage in "inter-municipal" co-operation.

Regional/spatial planning has also been inspired by two concerns involving larger areas:

- Firstly, the position of the Hungarian plains at the heart of Middle Europe, sandwiched between its North and South sectors and between Western Europe and South- East/Eastern Europe. There are plans to enhance this key position by means of an ambitious motorway programme launched in January 1992. By order of priority, this covers the following motorways: M1 and M15 between Vienna and Budapest, M5 between Budapest and the border with Romania and Serbia (Vojvodina), an alternative route to the trans-European Istanbul-Sofia-Belgrade-Zagreb route, M3 and M30 from Budapest to Western Ukraine and Eastern Slovakia, M7 from Budapest to Croatia.

- On the other hand, the growing concern voiced in Hungary regarding the future of Hungarian-speaking minorities, and the determination to compensate for the loss of markets in the former USSR and the former Comecon countries by finding new outlets in Eastern Europe have led the Hungarian authorities to open borders, applying the country's classic concept of the "spiritualisation of frontiers", respecting established borders but demanding free intercourse. This strategy will only be viable so long as tension in the countries around Hungary does not reach extreme heights and so long as Hungary's most nationalistic and revisionist political parties are kept in check.

The avowed aim is to put official relations on the same footing as local economic relations and to make Budapest the cultural capital of Hungarian-speaking minorities through a policy of transfrontier co-operation.

Awkward relations with Slovakia are hampering the effective operation of the Carpathian-Tisza co-operation agreement, a "macroregion" which was supposed to bring together the Hungarian counties of Borsod-Szatmár-Zemplén and Heves, two districts of Central and Eastern Slovakia, the Polish voïvodships of Kraków, Nowy Sącz, Rzeszów, Przemyśl, Krosno and Tarnów as well as two Ukranian districts in Transcarpathia. It does not include the Romanian counties close to the frontier because there is no blanket agreement between the two states, although relations at local level are much less tense than at state level.

On the Ukranian border, the rapid increase in the number of people shopping in Hungary has led to the opening of supermarkets in small towns in the county of Szabolcs-Szatmár-Bereg.

The Serbo-Croatian war and political pressure on Hungarian speakers in Vojvodina - 6,000 Hungarian speakers were expelled in 1992 - has led to an exodus of over 60,000 refugees, who are being housed at Szeged and in hotels on the shores of Lake Balaton.

CONCLUSIONS: THE OVERALL OUTLOOK

As can be seen from these three case studies, internal transition has had an immediate, lasting impact on the shape of countries. Moreover, renewed diplomatic freedom is allowing these states to "air" their relations, with the West of course, but also between themselves and with the new states of Eastern Europe.

Fresh interaction across borders is coming into play on all sides. Projects for Euro-regions - Nysa, Tatras and Pomerania - and the formation of joint commissions and committees (for example between Germany and Poland) are opening up promising avenues for the future. In some cases, especially around Poland, these are true innovations which deserve encouragement.

However, new checks and balances cannot be envisaged if the only regions to benefit are those in the western part of Central Europe. On principle, planning aims to spread development throughout the country. It would be dangerous, in the at times complex geopolitical context of this part of Europe, if disparities thrown up by modernisation were to diminish the ability of states and public bodies to manage political crises, especially in regions where the issue of the status of minorities is rearing its head.

Regional and frontier issues are therefore a vital component in defining strategies for spatial reorganisation. A "laisser-faire" scenario might heighten the new regional disparities and might provoke tension between neighbours. Conversely, an approach governed by contract allows programmes covering co-operation, the infrastructure and exchanges to be envisaged, holding out the promise of balanced development.

The efficacy of transition is at stake. What is also at stake is greater political stability in central and eastern Europe. This is a vital objective for wide-ranging regional/spatial planning in Europe.

REFERENCE LIST:

- Michel Foucher and Jean-Yves Potel (editors), Le continent retrouvé, Prospectives et Territoires, Editions de l'aube, February 1993;

- Michel Foucher and l'Observatoire Européen de Géopolitique, Nouvelle géographie du continent européen, Atlas de 320 cartes, Editions Fayard, April 1993;

- "The challenges facing European society with the approach of the year 2000: the outlook for sustainable development and its implications on regional/spatial planning", organised by the Council of Europe and DATAR (Delegation for regional/spatial planning and regional action, France), Roubaix, November 1992, (especially the reports by Mr Peter Szalo, Prof. Antoni Kuklinski, Prof. Peter Treuner);

- Környezetvedelmi es Területfejlesztesi, Magyarorzsag Területi Folyamatai, Budapest, 1991;

- Dlugookresowa koncepcja przestrzennego zagospodarowania kraju, Centralny Urzad Planowania, Warsaw, 1990.

NEW DIMENSIONS IN EUROPEAN REGIONAL/SPATIAL PLANNING: PROBLEMS, MEASURES AND PROSPECTS IN THE FIELD OF REGIONAL/SPATIAL PLANNING IN CENTRAL EUROPE AND ITS INTEGRATION INTO EUROPEAN-WIDE TRANSBORDER CO-OPERATION

Dr Friedrich SCHINDEGGER
Austrian Institute for Regional Planning (ÖIR)
Vienna

While preparing this speech it occurred to me that the concepts of problems, prospects and measures which represent the usual patterns of thought for regional planners should not only refer to spatial structure, the subject of our planning work. If applied to planning these three concepts could be a helpful orientation for self-critical analysis. After all, the field lying between the real development of the spatial structure and the planning related to it, is possibly one of the most important fields within the European context which I would like to call "state of awareness". The three concepts

- problems
- prospects
- and measures

on the one hand, as well as the three concepts

- spatial structure
- state of awareness
- planning

on the other, could be combined to form a matrix of nine fields. Based on this framework I would like to summarise by formulating nine statements.

I would like to emphasise that my point of view emanates from the geographical location of the region of Vienna, or Austria, and it is of course for the most part my purely personal point of view.

Geographical aspects draw attention to the problems of spatial structure which is the subject of statement No. 1:

The elimination of borders within the Western European Single Market and the opening up of the neighbouring countries of eastern and central Europe make the enormous disparities between the standards of living and economic power in Europe an issue of regional policy.

This is of course nothing new. Nevertheless I do find it appropriate in these times of confusion to stress the fact that disparity problems are the side-effects of any spatial community and may also be seen as positive signs of societal development: they become more important with growing solidarity or when - in this case literally - walls and barriers between territories and peoples fall.

The history of the so-called reunification of Germany until now shows us how difficult the political tasks related to political integration are and how long such integration processes may actually take. Considering that in the case of Germany, relatively favourable conditions for the reduction of differences were given, and the amount of funds invested there can hardly be matched anywhere else, the actual course of developments is quite different from initial expectations.

This should serve to warn us against placing too many hopes in other border areas to the east. Here new nations are emerging with great deficits of national identity and self-esteem, where different languages are

spoken and where it is hardly possible to "import" any public funds.

How problematic the effects of false forecasts may be on the development of the former countries of the eastern bloc can be seen in almost all of the entire area of eastern Europe. Forecasts depend on the prevailing state of awareness. This leads me to statement No. 2 which refers to problems of the state of awareness:

The East and the West were both taken unawares by the developments and effects of the opening up of borders; even the process of integration in the West is good for surprises.

This is also nothing new but I would still like to insist on the importance of the statement. If one looks at some of the concepts recommended to policy-makers by regional planners in several European countries then it becomes obvious that this fact has not been acknowledged. They act as if one can reckon with continuous and fully controllable processes such as in the early 1970s when global development alternatives were demanded and delivered, scenarios of trends, desires and compromises were produced, selected and even resolved. This cannot last for long. Regional planners acting in this manner will hardly be considered politically trustworthy and in my opinion quite correctly. His or her sense of reality is the last thing a regional planner can afford to lose.

The manner in which regional planning and regional policy will be carried out in the near future on a European level could be decisive for the further development of the entire discipline.

My statement No. 3 which refers to the problems of planning is:

National regional planning is largely still an underdeveloped field. The establishment of regional planning on a supranational European level poses the danger of placing overwhelming demands and at the same time offers the challenge of reorientation.

The history of the evolution of regional planning begins practically with the step from local to the supra-local, regional level. The progress of economical and technological development was accompanied by the spatial expansion of interrelated areas and distribution of functions that in the end made regional planning on a national level necessary (both in countries with centralised and federal administration). We are now experiencing how regional planning and regional policy are in the process of becoming established on a European level.

Of course I realise that for at least the last two decades considerations, discussions and concepts for regional planning have existed within the scope of the Council of Europe. But the nature of the Council of Europe as a consultative platform is connected to two main barriers for the realisation and implementation of regional planning: on the one hand, a lack of political responsibility for carrying out measures and, on the other, the lack of power to implement them (it does not distribute funds).

The political level for European regional policy has only become viable during the past three and a half years - astonishingly fast - within the scope of the EC. The rapid developments in the fields of work of regional policy within the Community have more or less forced the Commission to begin acting in a more planned and conceptual manner. In our opinion as outsiders, the dynamic course of developments themselves have forced the EC to apply regional planning. The objective of attaining political union has only increased this tendency.

The history of the discipline of regional planning, in my opinion, shows that with every step taken to the next functional level upwards of the socio-economic system, or to the next superior politically-defined community, the mistake that occurs is of simply superimposing planning concepts from the lower levels onto the upper levels. For example: from my point of view it is - in comparison - false to regard regional planning simply as land use planning on a larger scale. By the same token, it is questionable to attempt on a national level to determine the size and function of units of settlement - at least in German-speaking Europe which is organised in federal states (*Länder*) with highly autonomous communities.

This means that dealing with the European level implies risks for planning work and increases, of course, the need to co-ordinate measures. If, however, at the same time, as the document of the Commission *Europe 2000, Outlook for the Development of the Community's Territory* seems to indicate, a change in the philosophy of regional planning on a European level is to take place, then you will have considerable "inner planning" communication problems. On the other hand, I believe the document *Europe 2000* is very important because of its clear political context and strategic orientation which is also true for the national level. In this sense, regional planning on a European level could also serve as inspiration for regional planning on a national level.

This train of thought has led me to the subject of the future prospects of spatial structure and thus to statement No. 4:

The elimination of the disparity gap between West and East is only possible in the long run. In the short term, the situation in the east will become worse, whereby at the eastern periphery of Western Europe a gap will open up.

The Austrian Institute for Regional Planning (ÖIR) completed a study last year which elaborated different scenarios where eastern Europe was envisaged at different stages of development (stable/unstable) and the corresponding diverse strategies employed by the West as a reaction (offensive/defensive). The result was four scenarios. The important thing about them, however, is their common denominator: regardless of the scenario, the differing levels of the gross domestic product (GDP) between West and East shall continue to grow during the next ten years and only then will recovery begin to become possible. During the first years of the process of reform the GDPs shall decline by 20 to 30% in real terms as compared to the starting year. A real decline of the relative disparity levels of the GDPs will only occur in the most favourable of circumstances in the coming 15 years. In other scenarios the disparities increase drastically in some parts until the end of the period.

The implementation of the European Economic Area alone already creates a prosperity frontier to the countries of eastern Europe in the process of reform, only 50 km to the east of Vienna. Even in the most favourable scenario of development, the clear discrepancies in prices and wages at this border shall remain for a long time. The probability of achieving a relatively balanced situation such as at Austria's borders to western Europe within this period of time is very low. Austria has the advantage of being a direct neighbour to the countries in the process of reform with the comparatively best outlook for development. In spite of this, Austria's borders to the east serve to exemplify how wide the gap at the eastern periphery of western Europe could be.

In the long run, no exact demarcation lying precisely 50 km east of Vienna dividing prosperous regions will exist. What will evolve is a zone with differing levels of prosperity which overlap both borders. The disparities between the countries of eastern Europe in the process of reform will be contiguous to the disparities within the EC. How they will affect each other is unknown. For this reason special care should be given to matters of regional policy. In considering this outlook it does not seem reasonable to insist on limiting the Cohesion Fund permanently to the western and southern peripheral areas of Europe. Especially if one is aware of the fact that behind the future eastern EC frontier there is neither ocean nor sea, but eastern and central Europe.

We should also keep the state of awareness in mind when considering future prospects.

This is the subject of my statement No. 5:

The aggravation of conditions in the East and the gap feared at the eastern periphery of the West are the causes for the resurgence of "inter-national" and "inter-regional" conflicts and a hindrance to the process of European integration.

Regional planning and regional planning policy are of course not independent from the prevailing state of awareness. It is feasible that regional planning serves the ends of the concepts favouring bulkheads, competition and (renewed) subsidising. Such reactions to the new dynamism in Europe would be fatal for regional planning. It is now already very difficult - and I am speaking here only of regional planners - to make the notion clear that a new community called Europe is in the process of evolving, and not some new headquarters managed according to the usages of international bureaucracy which does nothing else but issue guidelines and distribute money. The present state of awareness concerning Europe of some regional policy-makers may be summarised roughly in two questions: What guidelines must we comply with? and How much money do we get?

A widespread attitude of compliance is due to subordination in connection with the expectation of receiving financial indemnity. However, the subject at hand is not compliance but the creation of a new community on a continental level that will supplement our existing system and make it more efficient.

Now I have reached the subject of the prospects for planning itself which is contained in my statement No. 6:

Regional planning will probably not react to this new situation for quite a while. I would like to mention one notion as an example in this context: the notion expressed in the word "transborder" mentioned in the title of my speech and another example is the idea of "cartographic exercises" (as I have chosen to call them) on the future Europe which say nothing on how policy-makers should act.

First of all I would like to take a closer look at the phrase "European-wide transborder co-operation". Of course European integration requires transborder co-operation beginning with the internal borders of the EC Single Market. The document *Europe 2000* also emphasises the fact that peripheral regions at internal borders will be decisive for future development. Precisely in this section on border cities and border regions special attention is drawn, quite correctly, to the chal-

lenge the areas at the external borders, and in particular at the future external eastern borders of the Community, pose. In this case one could interpret the word transborder as "EC transborder".

In reading the title of my speech and of this seminar one gets the impression that European regional planning work does not go beyond transborder co-operation. This is not true in my opinion. The "crossing" of borders in order to reduce their undesired effects is one aspect - the inter-national - which does help to create better conditions for "crossing" borders between member states and helps to reduce regional disparities. The other aspect is, in my opinion, to develop concepts and strategies for the whole of the EC, and in so far as possible for the whole of Europe. This is another, separate and new functional level - the supra-national - that can only be achieved in co-operation. Up to this point the second half of the concept is correct. In other words: transborder co-operation in Europe has the same function for me as the inter-communal co-operation related to regional planning within a country. This cannot supplant regional planning for the state, or for the functional system on a level above the communal level.

I might have over-used the word "transborder" when using it as an example, in my opinion, for false prospects. But sometimes one does need to be exact in order to clarify a matter at hand. We should also be aware of the difficulties that may arise from the multitude of languages spoken and their respective cultures. Please permit me to digress briefly from the main subject. The German expression, for example, *Raumordnung* as used in Austria, Switzerland (only recently there) and Germany has different meanings in the different countries. This fact has also been neglected in communications in German. This is aggravated by the fact that the word is not translatable and the English *regional planning* or the French *aménagement du territoire*, do not correspond to the content of the meaning of *Raumordnung*. One has to take care with concepts in Europe. The danger always lurks of fighting fake conflicts or achieving a fake consensus.

Now I would like to talk about "cartographic exercises". Repeatedly, even now after the publication of the document *Europe 2000*, the demand is made for "supplementary", hierarchical axes and metropolitan systems of master plans for final structures. Of course it is sensible to analytically monitor developments in these categories and if need be to draft controlling strategies. But to this end one must 1) know what the determinants are, and these must 2) be capable of being influenced by regional planning. It does not make any sense in my opinion to employ these guidelines as norms for plans. I dare say that regional planning does not have the power to effectively influence the size and distribution or the allocation of functions of centres in hardly any country of Europe. What is the sense in terms of regional policy in determining the size and categorising the cities for example of Vienna, Berlin, Prague and Budapest at the aggregation level of European maps? In my opinion here you have a case of post-rationalisation of planners creating the impression of developments being controllable.

The same applies to the axial hierarchies. It is sensible to define high-speed networks for railways and roads because these require long-term and co-ordinated planning measures, in particular there where massive investments in the infrastructure should be co-ordinated, such as in former East Germany. The word "axis" when used in connection with high-speed railway lines is in my opinion a semantic overkill. If one looks more closely at the necessary distances between stops and the required population and economic potential, then it soon becomes clear that one is dealing with an important linkage between centres and that what you have between these is not an axis but a track with a mainly disturbing impact on its surroundings. It would be much more important to look more closely at how to "extend" optimally the effects of constructing infrastructure leading away from these centres into the regions, into the areas. This requires measures that are not adequately described with the word or image of "axis".

I see no purpose in the cartographical pictures of axes, metropolises and networks that usually do not even differentiate between the status quo and the status aimed at. They do not contribute at all in my opinion to a European regional planning oriented towards the actual political situation since it is not even possible to define any kind of final structures of spatial development.

Now I would like to speak of the measures needed, which brings me to my statement No. 7:

First of all, what is already happening and what should be promoted is the expansion of the immaterial infrastructures which serve to reduce existing barriers to co-operation, in particular between neighbouring European countries which are part of a larger European region with similar problems. Secondly, the goal should be to install a long-term material infrastructure, preferably at locations where an untapped potential still exists.

To what I mentioned first I would like to add that immaterial structures are often those that last longer than the material ones. This applies both to resistance to change and to the extent and durability of its effects. In this sense the best basis for balancing inter-regional disparities are systems with decentralised power distribution within federal states.

I would like to name as an example for the promotion of immaterial structures on a European level, as seen from my geographical perspective, the Alpine area which, due to its complex combinations of functions, doubtlessly requires European co-operation on regional policy and thus for regional planning at the highest level (in all senses of the word).

Here work has already been accomplished. I am thinking of the Working Group of Alpine Countries or the Alpine Convention signed at the end of 1991. This type of immaterial infrastructure should preferably be used to identify the direct and permanent determinants for the development of the spatial structure, and to engage in lobbying in view of their influence on regional policy, instead of letting oneself be carried away by "master plans of final structures". In other words: I find the development of the Alpine region on a European level, such as can be found in the Transit Agreement between the EC, Switzerland and Austria, in a (yet non-existent) common strategy to increase the attractiveness of rail transportation for winter tourism or in the specific components of a common agricultural policy for mountainous areas, much more important than maps with defined structural guidelines.

A second example for the promotion of immaterial infrastructures between neighbouring areas - from the point of view of the location where this seminar is being held - are the future eastern borders of the EC. If one attempts to apply the concepts stated in the document *Europe 2000* for expanding transborder relations between centres under the direction of the regional centres to Austria, then you have the partner cities for these leading centres of transborder co-operation between Vienna and Bratislava - practically a model case of such co-operation in central Europe - Graz and Maribor, Klagenfurt and Ljublijana and Linz and Ceske Budejovice. The areas of co-operation might, among other things, be culture, education, company relations, communal services, tourism marketing. A good basis for the promotion of co-operative regional initiatives are the long historical relations between these neighbouring countries.

In this context I would like to point out that the support of the Council of Europe is especially important for transborder immaterial infrastructures across EC borders.

Of course one needs new immaterial infrastructures, a need which applies especially to those regions at prosperity frontiers which should by no means become the "glacis to the fortress of Europe". The massive funds invested in trans-European transport networks should not ignore the "new periphery" in the east. Precisely when speaking of impulses for development, one should mention projects such as the high-speed railway link Berlin-Prague-Vienna-Venice. This link could implement several of the goals stated in the document *Europe 2000* at once: in addition to creating a tangential route in the EC eastern border area it would also create a connection for the high growth area of upper Italy to the new peripheral areas. This is also an example of strategic importance for the whole of central Europe. I am convinced that there is more "profit for the aim of integration" in one kilometre of this line than in one kilometre of some railway lines yet to be built in the "European High Speed Railway Network (2010)" mentioned in the document *Europe 2000*.

As I mentioned earlier, it is not only a matter of the measures related to spatial structure but also to the state of awareness of the those being addressed. This leads me to statement No. 8:

The promotion of the community of Europe requires a regionalised point of view in the area of regional research, encompassing the whole of Europe with regard to the homogeneousness of regional problems on the one hand, and functional spatial relations on the other, all this excluding national borders.

This is exactly the way the document *Europe 2000* describes the research and planning work to be accomplished in the future within the scope of EC regional policy. Of course it is important and indispensable that determinants and indicators be viewed in relation to the spatial and structural development of Europe on a national level. However, in order to meet the requirement of an adequate regional planning for the new Community of Europe and its functional levels, it is necessary to aggregate the regions to superordinate units other than those limited by the territory of a member state. At this point I would like to make a personal comment: when I was in Brussels at the DG XVI over one and a half years before the publication of the document *Europe 2000*, I was shown the draft map of the "Areas of Transregional and External Spatial Impact Studies". I spontaneously exclaimed that it was the first map I had seen which expressed the perspective of European regional planning (although it only defined areas being researched).

For this reason it is necessary that the regional data produced by EUROSTAT be aggregated to such "European areas of analysis" - in addition to those of countries. As an example taken from the lower planning levels I would like to mention that it is common practice, at least in Germany and Austria, to use aggregates below the level of *Länder* (regions in Germany, districts in Austria) for national regional research of the whole territory of the state and to create regionalisations and typologies independent of the *Land* belonging to it.

Maps drawn up with this in mind are of great importance for bringing about a state of awareness which in my opinion is a prerequisite for future European regional planning.

The last statement No. 9 in my matrix is related to measures in the field of planning:

If one follows the course of thought of planning to the end, then planning has to transform its own production into the subject of planning, i.e. make the goal-oriented application of means subordinate to a rational calculation. In my opinion this means that the useless task of planning final structures should be replaced by effective strategic planning.

Regional planning is apparently the only discipline which advises policy-makers and still sees its task in presenting final structures to policy-makers as a solution to the problems of society. At the very latest now - at this turning point in history - is when we should leave this notion behind us and embrace a strategic manner of thinking. Planning aims at intervening in active processes which are becoming more and more complex and discontinuous and in reality will only be able to turn some of the smaller wheels of the socio-spatial system. This should lead us to take the consequences.

In a book published by BRYSON and EINSWEILER on the characteristics of the strategic approach as compared to the global approach prevailing until now, it is stated, that "...simply put, strategic planning requires a more comprehensive point of view of what may be important than that which normally guides comprehensive planning. At the same time, strategic planning produces a more selective action focus."

Strategic planning is of course more difficult in structures with separated responsibilities than in homogeneous units of decision. BRYSON and EINSWEILER say, "... what is perhaps the most important paradox of strategic planning: strategic planning is probably most needed where it is least likely to work."

In this sense one can say that the EC Commission is very correct in its underlying strategic concept in European regional planning as stated in the document *Europe 2000*. This should be maintained by all means in all future updates.

Finally, I would like to state the main tasks for the strategic work of European regional planning from the point of view of the location of this meeting and from my personal point of view:

1. Increase "inter-regional" co-operation as a contribution to the balance between inter-regional competition and inter-regional separation of functions.

2. Development of "bridgeheads" on both sides of the prosperity borders as a contribution to the diffusion of the effects of integration.

3. Material investments in trans-European infrastructure to facilitate covering distances.

With this appeal for strategic planning I would like to close my last statement and my imaginary matrix. I hope that my speech has served as an orientation and not added to your confusion.

NEW DIMENSIONS IN EUROPEAN REGIONAL/SPATIAL PLANNING: PROBLEMS, MEASURES AND PROSPECTS IN THE FIELD OF REGIONAL/SPATIAL PLANNING IN CENTRAL EUROPE AND ITS INTEGRATION INTO EUROPEAN-WIDE TRANSBORDER CO-OPERATION

Dr Nora HÖRCHER
Dipl. Arch.
Chief Adviser
Ministry for Environment and Regional Policy
Budapest

INTRODUCTION

The four and a half "peaceful" decades after the second world war were a period in the history of mankind when central and eastern Europe became the scene of an extremely dangerous experiment. Without taking into account the functioning of the existing economic structure, the building of a new social-political-economic model was attempted on the basis of Marxist ideology and under the pressure of external super-power aspirations. As it is known, this attempt proved to be a failure and nowadays we are enduring and at the same time witnessing a therapy that has no traditions or practical experiences from previous periods of history.

This experiment - dictated from external and upper sources for nearly half a century - caused extraordinary damage to a large part of Europe; destroying the different structures of the economy, which had begun to conform to European norms, and of the society, protecting and creating values. The greatest damage caused, however, was to the consciousness of people, in their capability to recognise the interdependence of causes and effects, in man-centric, humane ways of behaviour.

The European countries on the other side of the iron curtain - which could not know by experience the inconceivable, slyly functioning machinery of the Orwell-type world - showed great empathy towards the region's peoples, disabled for so long by this machinery. Nevertheless, today, they contemplate with shock and a great amount of incomprehension the unexpected release of tensions, oppressed for such a long period, causing inestimable consequences. They do not - and cannot - understand, the reason why the countries of central and eastern Europe cannot put to use the possibilities for democracy which had been expected for such a long time; they do not understand why the creation of the market economy to replace central planning, is faltering; they do not have to live through the humiliating, disappointing effects of the change of the political power into economic power, which is affecting many millions of honest people. From a rational point of view, it is difficult to understand why the major part of the population is becoming more and more alienated from politics which leave them indifferent, and, although there is a strong will to serve own individual interests, why the role of the local interests in deciding, multiplicating or restricting individual possibilities, are not recognised.

The Council of Europe is fulfilling a historical mission in organising these colloquia, as there has never been a greater need for the countries of Europe with different historical backgrounds and social-economic development levels to understand each other, and show that "European integration" has real content and is not just an empty slogan.

Before I begin my report, I would like to thank the Secretariat of the Council of Europe for the organisation of the colloquy, the excellent choice of the theme, and for making possible the substantial dialogue between European regions with different characteristics. This sincere dialogue should enable developed countries and countries awaking from the nightmare of communism - and therefore representing a lower economic and social development level - to clear up misunderstandings.

I. Main features of the radical social-economic transformation, and its spatial differentiation as the consequence of change in the political system

For decades, the spatial structure of the Hungarian economy was characterised by the dominance of material production - above all by forced industrial development. The roots can be found not only in the faults of the central economic policy, controlled by ideology, but they also originate in the development of the so-called "Prussian way" at the beginning of the century, when state orders and subsidies played a decisive role in production on an increasing scale.

The territorial location of exploitable raw materials for industry led to a concentration of a great extent of industry's spatial structure; but, as a consequence of the Trianon Peace Treaty, a significant part of the basic raw material, ie the condition for capitalistic development was found outside the national borders. Therefore, the consequence was an even greater concentration of industrial development. The country lost one third of its original territory and its only real large town remained Budapest, as the ring of great towns with multilateral development potential and favourable conditions were torn from the country. The transition to "socialist" planned economy intensified the territorial centralisation process. By the end of the fifties, the centralised economic management system concentrated a major part of country's resources into some - mainly heavy industrial -branches. The main area of industrial development based on the production of energy and raw materials, was situated above the imaginary North-East - South-West axis of the country. More than 80% of central resources, aimed at the development of infrastructure, were allocated to this area during several decades.

In the centrally-controlled development process, macroeconomic viewpoints were not taken into account and environment/environmental protection questions were not considered at all. The historically-formed strong spatial concentration of industry was eased in the seventies, when a more decentralised development began; but industry installed in regions with an agrarian background and using manpower coming from agriculture, could not become marketable in a European way. This economic policy really had no influence on the acceleration of regional development of the area below the above-mentioned axis. There is no doubt that there was a certain balancing process at macro-regional level as a consequence of the economic and regional development policy aiming at more decentralisation of the spatial distribution of industrial development, but this tendency at macro level could not decrease substantially the differences in the pace and level of development between the dynamically developing areas and the underdeveloped ones.

The map of - traditional - differentiation at macro-regional level was modified to a great extent by the inevitable change in the economic structure as a result of the change of the political system, when the regions, which earlier showed dynamic development, become crisis regions and the tasks of regional policy were multiplied in a dramatic way.

Today, the most significant phenomenon accompanying the spatially expanded crisis is unemployment, which we have no experience in handling. At the same time, transition to the market economy and the creation of a new type of economic organisation have strengthened regional differentiation. The spatial location of these new economic activities - created on an associative basis - leads to new concentration tendencies in the search for favourable economic conditions; this also means a new challenge for regional policy, aiming at the reconstruction of regional equilibrium.

So far, the experience of privatisation, - in the absence of earlier experiences - is not so hopeful but cannot be considered negligible. Its negative features are, on the one hand, that it does not result in a transformation of the structure and an increase in effective production, but rather buying off the markets. On the other hand, it results in the change of political power into economic power of the elite on the basis of political merits. The latter rightfully creates enormous social tensions, and therefore keeps down national reconstruction. These problems do not affect all regions in the same way, but on the whole they brake the acceleration of the country's regional development.

The largest obstacles in the way of economic structural change are the underdevelopment of infrastructure and

the general and grave deterioration of the environment, consequences of earlier development policy. A great amount of capital is necessary to overcome these braking effects, which means an almost insolvable problem for the country in a period of economic recession.

As a consequence of the disproportions which have evolved historically, the regional effects of the economic policy which has been followed for nearly half a century since the second world war and the crisis phenomena emerging in the process of economic structural change, the following regional differentiation can be observed on the territory of the country:

- in some regions which were traditionally more developed (greater agglomeration of the Capital, North-Transdanubia, etc) there is a real chance for the start of economic growth, and therefore acceleration of regional development;

- part of the traditionally underdeveloped territories (eg the north-eastern part of the country, the major part of the Great Hungarian Plain) can move ahead on the way to closing up; at the same time there is a threat that the other part will fall behind the general line of development;

- the regions significantly affected by economic structural change - and which were the scenes of earlier forced industrialisation - a part of which became crisis regions, are heterogeneous. Their chances of getting out of the crisis are influenced not only by external support, but, to a great extent, also by the militant capacity and the inventiveness of the population living there.

II. Place, role and means of the regional policy in influencing spatial processes

Even in professional circles it is a debatable question whether, concerning the last decades, we can speak about explicit regional policy or regional policy which only followed and served the economic policy. Contrary to many opinions, I consider, that - even if it was not officially declared - regional policy really existed and could show positive effects, in spite of the limits imposed by the past political system. It was mainly represented by a narrower profession, and it had a restricted influence on the political and economic power. The National Settlement Network Development Concept, which was elaborated at the end of the sixties following the Christaller model and came into force in 1970 (prepared by research and planning work at European level over several years), aimed at strengthening the Hungarian urban network in the interest of accelerating regional development. This aim was in conformity with the extensive development period, when the establishment and strengthening of the network of towns to provide for the country's population was indispensable, and it promoted also the closing up of the underdeveloped regions.

The development of "central places" was motivated by more rational thoughts than the shortage of resources; in the developed countries of Europe there was also a period of economic development, when the strengthening of the urban network played an important role in putting energy into regional development.

In Hungary recently both the concept and its realisation have been heavily criticised, but a serious evaluation has not been carried out until now. The cause of the negative approach is, first of all, the fact that the central distribution of the resources envisaged for development followed rigidly the settlement categorisation, which, according to the original concept, only wanted to serve the rational hierarchy of the provision.

In other words, not the basic principles but the dictatorial and schematic ways of implementation are to be blamed for the actual phenomena of accelerated migration from rural regions to industrialised areas, from villages to towns etc., that resulted in growing tensions in the actual concentration phase of the urbanisation process.

In my view, the most essential shortcomings of the regional policy of the past decades may be explained by the lack of knowledge related to the dynamics of regional consequences of urban growth processes and by the lack of adequate international experience. Even highly qualified professionals did not recognise in time that, due to a new phase in the economic development process, regional policy should have been changed.

While there is no doubt that regional differences decreased on the macro scale as a result of the ongoing central measures, at the same time this led to increased tensions on the micro-regional level. Regional policy could not handle the phenomenon of agglomerations, and the pace of development between towns and their outskirts became even more different. As a result of this, the regional expansion of the positive effects of urban development was heavily hindered.

The change of the political system, the polarisation of public power relationships, the establishment and consolidation of self-governments, the transformation of ownership, the building-up of a society-oriented market economy are also creating new conditions for regional policy. The centrally-directed management of the previous decades cannot continue in the new situation, partly because instead of large state investments the

developments are more and more based on local initiatives, and partly because direct interventions of central management are no longer accepted by the society on the path to democratisation.

At the same time, the market-oriented economy reproduces and strengthens regional disproportions, leading to sharpened political and social tensions. The interest of society is inevitably to decrease the exaggerated regional inequalities without levelling them in a negative direction.

III. Dilemmas related to the establishment of a new regional policy

The National Regional Development Office - functioning in the framework of the Ministry for Environment and Regional Policy - has been working for at least two years on the elaboration and adoption of the principles of a new regional policy, and on the development of a new regional development practice. It became obvious that changes are needed in the spheres of

- legal regulation,
- institutional system,
- system of supports and subsidies,
- intersectorial and regional co-ordination,
- regional planning, and
- information systems.

There are two fundamental dilemmas when developing the Government's regional policy, namely:

- The almost exclusive tool of the government's regional policy at present is the Regional Development Fund, coming from the State Budget. Its utilisation is regulated in a new law. Subsidies from this Fund can be obtained through competition by selected settlements which are considered to be underdeveloped. (The list of applicable settlements are decided at central level present.) There is a heavy pressure on the government as the number of settlements getting into a crisis situation is increasing from year to year, but the sources of the Fund cannot keep up with their requirements. Professional opinions differ on the effectiveness of this way of using the Fund. Some experts say that central resources for regional development should not be used exclusively for crisis management, but a proportion should be set aside for developments which could have a driving effect on some regions with more potential for the acceleration of economic and regional development.

- The second dilemma comes from the need to decentralise the decision-making system in the field of regional policy-making and implementation. There is no doubt that we have to move towards a more decentralised regional policy practice, but at present we do not have the appropriate institutional system to do so. Opinions of professionals and politicians vary as to the pace and possible ways of the most effective approach. We have to choose a way that enables us to reach maximal utilisation of central resources.

IV. The role of PHARE support for regional development

PHARE support for regional development in Hungary intends to help the government to establish a new regional policy in conformity with the changed conditions in the country and the system existing in the European Community.

The specific objectives of the programme are to:

- develop regional policy and strengthen the operation of the Regional Development Fund
- establish integrated pilot development programmes for north-east Hungary
- introduce actions to promote intermunicipal co-operation.

The cost of the programme is 10 million ecus, its final deadline: 30 June 1996. The utilisation of the support is organised by the Programme Implementation Unit established in the framework of the Ministry for Environment and Regional Policy. The financial proposal of the programme was approved in Brussels on 14 December 1992.

The elaboration of the detailed work plan for the execution of the programme has already begun; parallel to this, in the counties of Szabolcs-Szatmar-Bereg and Borsod-Abauj-Zemplen, regional development councils are being set up. In the composition of the councils, important criteria are the suitable representation of the broad society of the region, democratic decision-making, and the co-ordination of the different interests.

V. Perspectives of the central and eastern European region focused on European integration

In the course of the last two years while attending different international conferences, I have seen a lot of maps showing the possible future of Europe where the central and eastern European region was missing. I also saw several times the "blue banana" as a consequence of western European integration, illustrating the concentration zones which in all probability will be formed.

The extension of the "banana" changed depending on the country of origin of the lecturer, so smaller or larger

"bananas" covered the territory of the regions playing a central role in the future according to the forecasts. The European concentration zone covered with a dense network of long distance rapid railways and highways in every variation ended at the eastern border of Germany, and the lines bordering the periphery, even in the best case, included only Austria and the environs of Vienna, in the great territory of united Europe.

The scenario characterised by the "blue banana", as it is known, is only one alternative of expected development. The other, the so-called "mosaic model" envisages an alternative picture of the future in Europe, where the heterogeneity of the smaller regions remains alongside the general tendency of integration.

We consider this latter model as a more realistic alternative, even if the closing up to a higher level would be more desirable for Europe. Our view in favour of the "mosaic model" does not mean, however, that we do not consider the fundamental objective to move towards a more balanced model. This means at the same time that, in spite of all or existing dilemmas, we are ready to serve the goal of a more balanced spatial structure in Europe.

NEW DIMENSIONS IN EUROPEAN REGIONAL/SPATIAL PLANNING: PROBLEMS, MEASURES AND PROSPECTS IN THE FIELD OF REGIONAL/SPATIAL PLANNING IN CENTRAL EUROPE AND ITS INTEGRATION INTO EUROPEAN-WIDE TRANSBORDER CO-OPERATION

Dr Dietmar EISENHAMMER
State Chancellery of Rhineland Palatinate
Mainz

1. New parameters for regional/spatial planning in Europe

On the threshold of the year 2000, regional planning in Europe must adapt to a new environment characterised by:

- political and economic change in the states of central and eastern Europe,
- the completion of the Single European Market,
- the creation of a unified European Economic Area,
- the reunification of Germany and
- the strengthening of the regional level in a Europe of the regions.

These new parameters are having considerable repercussions on all planning and settlement structures in central Europe, particularly in the transport, environment and economic development sectors, a fact which was emphasised by the Ministers responsible for regional planning at their 9th meeting in Ankara.

Europe is becoming a frontier-free area and consequently regional/spatial planning does not stop at either internal or external borders. Spatial development processes in Europe as a whole will therefore have to be jointly elaborated and harmonised by the European partners. Regional planning is therefore taking on new dimensions in the context of international co-operation and more particularly in transfrontier co-operation, which is an essential element in the policy of European integration. In the Federal Republic of Germany, this has been reflected in the law on regional/spatial planning which states:

"Planning of federal territory must be so conducted that it creates suitable spatial conditions for co-operation in Europe and promotes such conditions."

In recent years, co-operation has been strengthened at various levels in Europe. The conditions for direct co-operation between European neighbours have improved. The process of European unification is no longer exclusively taking place horizontally at a national level. The regional level is taking on increasing importance and is therefore making a decisive contribution to bottom-up integration in the context of national co-operation. Initiatives aimed at strengthening co-operation at a regional level in a number of fields, including regional/spatial planning, have multiplied in various European countries such as France, Italy, Belgium and Spain as a result of decentralisation and the weight of the European regions is therefore growing.

At a European level, regional/spatial planning is entering into a new and important phase and has to face a new challenge. Besides co-operation within the EEC, co-operation with future EEC partners and with the states of central and eastern Europe and the partners of these countries is also important. The European

Conference of Ministers responsible for regional planning plays an important interface role with the EEC.

2. Transfrontier co-operation in Europe

In the Europe of the regions, co-operation beyond national borders, both internal and external is essential. The geographical situation of many regions, the network of transfrontier communication links and regions' numerous economic and cultural overlaps with European neighbours necessitate a European, transfrontier perspective on regional/spatial planning.

With the realisation of the Single Market and the creation of a unified European Economic Area, frontier areas will have the opportunity, in a Europe of the regions, not only to be good neighbours linked by shared landscapes and sometimes a shared language, but also to revive cultural and social links and to establish productive economic links.

In the field of regional/spatial planning, the aim of transfrontier co-operation is

- to exchange information and experience, to discuss problems and resolve them in order to promote the development of frontier areas and give them new impetus;

- to highlight the special role of frontier regions in the European context and the specific advantages of their position;

- to harmonise planning procedures, particularly with regard to infrastructures, urban and landscape planning, and to examine their effects on frontier areas so as to identify appropriate strategies and propose measures for implementing them;

- to give frontier regions a visible profile in regional planning policy, and also in European regional policy;

- to improve transfrontier co-operation and co-ordination and to extend it with the aim of

* guaranteeing balanced social and economic development in the regions,

* improving the quality of life,

* guaranteeing the protection of the population,

* making responsible use of natural resources and protecting the environment,

* making planned and rational use of space.

This illustrates that the European Regional/Spatial Planning Charter concluded at Torremolinos in 1983 retains particular significance with regard to transfrontier regional co-operation.

3. Regional/spatial planning requirements in transfrontier regions

The basic purpose of regional/spatial planning is co-ordination, not only on a national level but also in the context of transfrontier co-operation. The Torremolinos Regional/Spatial Planning Charter puts it clearly: "Frontier areas, more than all others, need a policy of co-ordination between states. The purpose of such policy is to open up the frontiers and institute transfrontier consultation and co-operation and joint use of infrastructure facilities."

These principles are still valid today.

In this regard, it should be underlined that the co-ordination of regional/spatial planning is unthinkable without clear ideas on its development or aims:

- covering the fundamental elements and objectives of spatial organisation, assessment values, the objectives of quality of the environment and ecological reference values; projects must be harmonised in a number of fields, including transportation, supply and waste disposal,

- defining regions of balanced urban development and

- grounded in a concept of towns working in co-operation.

Principles or models of development must be created in accordance with the "reciprocating principle", in other words, a comprehensive bottom-up and top-down view must be taken in order to develop transfrontier conceptions of regional and spatial planning and development. These principles are to be applied in the upper Rhine region.

4. Regional spatial planning in the upper Rhine area

In the upper Rhine area, trilateral co-operation between the German, French and Swiss executives has been institutionalised since 1975 on the basis of an intergovernmental agreement. This region encompasses the two Swiss cantons of Basel (Urban) and Basel (Rural), Alsace and some localities in the Freiburg and Karlsruhe districts in Baden-Württemberg. This institutionalised co-operation operates on various levels:

- on a national level through the Franco-German-Swiss Intergovernmental Committee,

- on a regional level, in the context of the Franco-German-Swiss upper Rhine area Conference,

- on the level of working groups/committees of experts.

The "regional/spatial planning" working group, set up in 1987, falls into the third category. Its terms of reference are:

- to analyse and use the space and sector planning documents available for the Franco-German-Swiss area of intervention, taking account of their importance in transfrontier terms;

- to undertake joint studies with the aim of situating the role of the upper Rhine region in a European context and to propose strategies and means of using the region's assets to the best advantage;

- to determine objectives and means that will permit a common approach and understanding of spatial development in the upper Rhine area.

The wording of the terms of reference point to the importance of elaborating common concepts of development for transfrontier regional/spatial planning; these concepts of regional transfrontier development are particularly important for promoting a close dovetailing and joint development in border regions. They constitute a major tool for European integration at national frontiers.

Two development strategies have been finalised for the upper Rhine area:

- the "PAMINA" transfrontier development strategy in 1989, concerning the north of Alsace, the southern Palatinate and the mid-upper Rhine, 50% co-financed by European funds;

- the mid-upper and south Rhine transfrontier development strategy in 1991, concerning southern Alsace, Südbaden and the north-west of Switzerland, 50% co-financed by European funds.

Thanks to these two projects, transfrontier co-operation in the upper Rhine area is acquiring a new dimension and this includes regional/ spatial planning: hitherto, co-operation essentially comprised the exchange of information and mutual consultation. It will now extend further; the development projects that have been presented comprise, firstly, an analysis of the economic and social situation of these border regions, secondly, a definition of development strategies and objectives and lastly a list of joint transfrontier measures with a list of priority projects, some of which were to be carried out jointly.

The realisation of these transfrontier projects is facilitated by an initiative from the EEC Commission for frontier regions (INTERREG). This provides for the award of Community aid to joint transfrontier projects and it covers up to 50% of the total budget for regional/ spatial planning in the upper Rhine, the remainder being met by co-financing at a regional level.

Transfrontier regional/spatial planning in the upper Rhine area takes account of the following facts:

- the total surface area of the whole frontier region is approximately 19,000 sq. km for a population of 4.6 million French, Swiss and German citizens;

- this region employs 2 million people;

- it has around 100,000 commuters who travel daily between the southern Palatinate, Baden, Alsace and north-west Switzerland;

- the upper Rhine frontier area is characterised by polarisation into areas of different activity: in Alsace and in the north west and in the Baden section of the upper Rhine area the tertiary sector is predominant, whereas the situation is the reverse in the southern Palatinate;

- overall, the average annual income for the upper Rhine area is higher than in Norway; standing at around 17,000 ecus per inhabitant in 1988. There are wide disparities within the region itself, ranging from a top 29,000 ecus average for north-west Switzerland, above Baden with around 17,000 ecus followed by Alsace with around 15,000 ecus (1989) and the south Palatinate with around 14,000 ecus.

A recent survey carried out in the upper Rhine area and based on this analysis drew the following conclusions on regional/spatial planning:

- the numerous spheres of activity in the upper Rhine area require efficient spatial co-ordination if only because of the growing need for space in various fields;

- transfrontier co-operation in planning projects which will have an impact on space and the elaboration of joint conceptions of planning and development for the upper Rhine area are a basis for making better decisions on the siting of enterprises and for identifying sites in the medium and long term. To ignore these aspects is to increase the risk of:

* doubtful and risky decision-making on the siting of enterprises;

* conflict over the use of space and arguments between the various districts involved in the event of new sitings.

- weak points in the transborder harmonisation procedure hitherto used in the upper Rhine area are:

* intensifying transfrontier co-ordination on projects which will have an impact on space at various levels, in accordance with the principles of reciprocity and equivalence;

* elaborating and realising joint conceptions of transfrontier spatial development, as an action framework for co-ordination measures from the public authorities.

On the basis of these facts, the expert for the upper Rhine area draws the following conclusions which are equally valid in general terms for all European frontier areas.

Given the need for local authorities to look ahead in terms of planning sites, and particularly in terms of choosing sites for enterprises, the first step would be to draw up common guidelines which would not be binding, for the spatial and structural development of the upper Rhine region.

These guidelines would then constitute a solid base for:

* identifying common objectives and missions in the upper Rhine area,

* identifying and assessing strong and weak points,

* defending the interests of the upper Rhine region more efficiently and including its specific development objectives in the space management policies of the neighbouring states and the EEC,

* co-ordinating and harmonising planning with a spatial impact across frontiers,

* a policy on construction sites in the upper Rhine area.

A plan for transfrontier management and development in the upper Rhine area could be established on this basis.

This plan should include:

* a network of centres with partially interconnected functions,

* a concept for siting future centres of economic development and for designating sites for the construction of large-scale projects such as industrial estates, etc,

* a plan for a communications network and infrastructure harmonised with the centres and sites,

* large and significant areas of countryside, zones of special ecological interest and proposals for transfrontier green spaces and the creation of protection zones and priority assignment zones for natural areas with significant potential,

Concepts of space management for partial zones can be elaborated on this basis,

At the same time, it will be necessary to strengthen transfrontier co-operation between local authorities with regard to activities important for site planning.

With regard to intermunicipal co-operation it should be added that co-operation at this level is an important element in joint regional spatial planning activities, and that it will be further strengthened by the abolition of borders. Looking to the future, it is important that intermunicipal co-operation should go beyond the mere formalities of agreements, recommendations or informal working groups and for a legal framework for district transborder co-operation to be established. This could then act as a basis, finally permitting some districts to co-operate in regional spatial planning and thus fulfil their joint mission. It will ensure that some border districts will be able to carry out joint activities, including essential self-administration tasks, more rapidly, efficiently and economically. Furthermore, border regions have an opportunity to overcome their natural, peripheral position. The Council of Europe had set the ball rolling in this direction with its European Outline Convention on transfrontier co-operation between territorial communities and authorities. For the Federal Republic of Germany, the Germano-Dutch agreement of 1991 represents a breakthrough in mandatory transborder intermunicipal co-operation. The amendment made to the German Constitution in the framework of the ratification of the Maastricht Treaty in 1992 should also be mentioned. This states that, to the extent that the *Länder* have the necessary competence with regard to the exercise of national powers and missions, they are authorised, with the prior agreement of the Federal Government, to transfer the exercise of sovereign rights to neighbouring transfrontier institutions.

This represents a decisive step forward in the effort to create suitable conditions for mandatory transfrontier co-operation between municipalities, in areas including regional/spatial planning and land use plans on both sides of the Franco-German border.

5. A citizen's Europe

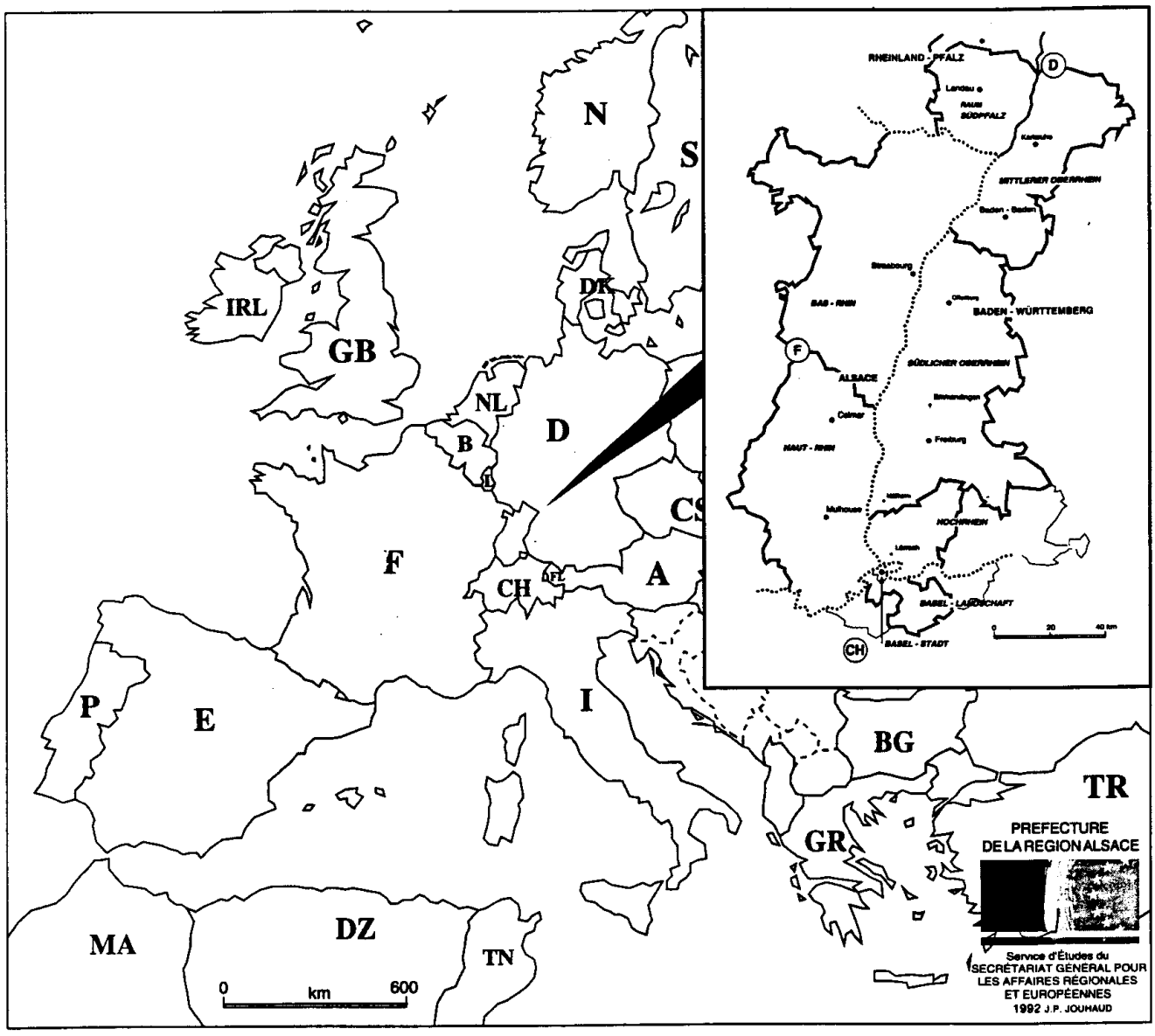
The new challenges which have emerged as a result of the extension of Europe illustrate the need for neighbouring regions to co-operate in the field of regional/spatial planning, amongst others. The ultimate proof of the success of this transfrontier co-operation can only be measured in terms of how it benefits the people who live in the region. The elaboration of regional/spatial planning and development plans is an important aspect of this. Comprehensive reference must also be made to Europe.

Conclusions

Regional/spatial planning at a European level must formulate guidelines and ideas for common development. European states would have to apply such principles. When concepts of transfrontier regional/spatial development and management are defined, they constitute the framework for strategies and concrete measures in the frontier area. In turn, the realisation of these activities has repercussions on the principles of regional/spatial planning at a European level.

This approach corresponds both to the principle of reciprocity and that of subsidiarity in a citizens' and regions' Europe. In future, these two elements will constitute the pillars of European transfrontier co-operation, for regional/spatial planning and other areas.

THE UPPER RHINE IN ITS EUROPEAN ENVIRONMENT



THEME 1

2nd Part

NEW DIMENSIONS IN EUROPEAN REGIONAL/SPATIAL PLANNING: EXPERIENCES WITH TRANSBORDER CO-OPERATION IN WESTERN AND EASTERN EUROPE

CHAIRMAN: Dr Gerhard SILBERBAUER
Office of State Government
Lower Austria, Vienna

REPORTS PRESENTED BY:

NEW DIMENSIONS IN EUROPEAN REGIONAL/SPATIAL PLANNING: EXPERIENCES WITH TRANSBORDER CO-OPERATION IN WESTERN AND EASTERN EUROPE

The Upper Rhine Regio

A model in Europe!
A model for Europe?

Mr Christian HAEFLIGER
General Secretary of the Regio Basiliensis
Basle

1. THE TRINATIONAL "REGIO" AREA

The periphery of the Regio is marked out by three summits, all bearing the same name of Celtic origin: Belchen (Ballon). The first (Ballon d'Alsace), in the Vosges, marks the westernmost reaches of the Regio, the second (Belchen) in the Black Forest, its eastern limit, and the third (Belchenfluh), in the Jura, its southernmost point.

Situated along the Upper Rhine, at the crossroads of three countries, Switzerland, Germany and France, the "Regio" to the south of the Upper Rhine is a European frontier region. It is bordered by the Vosges to the west, by the Jura to the south and by the Black Forest to the east. Of its 2.1 million inhabitants, 770,000 live in the French Haut-Rhin *département*, 750,000 in the south of Baden in Germany and 580,000 in north-west Switzerland. However, the "Regio" grew when transfrontier co-operation was institutionalised in 1975 and an enlarged "Upper Rhine Euregio" extends to Strasbourg, Karlsruhe and the south of the Palatinate and has 4.6 million inhabitants.

The three-frontier conurbation of Basle, with a population of 500,000 (35,000 on French territory and 90,000 on German territory) is also flanked by borders.

Far from being a mere geographical notion, the Regio also forms a historical and cultural entity. Although the Rhine has often been employed as an arbitrary border, the inhabitants of the Regio view it as a source of rapprochement, as the highway flowing through a common space, between the mountain ranges bordering the Rhine plain.

This cultural link, which has never ceased to unite the inhabitants of the Regio, is found in the language, literature, folklore and architecture.

2. THE SWISS "REGIO BASILIENSIS" SET-UP

The Regio Basiliensis is the Swiss organisation for Upper Rhine co-operation. Founded in 1963, it is an association in accordance with Article 60 of the Swiss Civil Code. It is supported both by individual members (some 300) and by collective members (around 220): companies, organisations and the two cantons of Basle-town and Basle-country. Its aim is to serve as the Swiss side's promoter of the development of the Upper Rhine area into an interdependent European transfrontier region and to co-operate in its realisation.

The general secretariat is the association's executive body. It establishes contacts (with European organisations, for example) and then works to develop and maintain them. It organises studies, surveys and action programmes and co-ordinates project groups (for example the Regio Study of the economy of north-west Switzerland).

In 1970, an agreement between the cantons of Basle-town and Basle-country provided for the attachment to the Regio Basiliensis of the International Co-ordination Department, which became a semi-public body. With this department, now detached from the two cantons, for transfrontier co-operation in the Upper Rhine and the association's general secretariat, the Regio Basiliensis is able to act in both an official and unofficial capacity.

The general secretariat and the International Co-ordination Department only have a few permanent staff: three people work there full time, including the general secretary, and five part time.

The Co-ordination Department, run by the head of the Basle-town Interior Department, also acts as the secretariat of the Swiss delegation to both the Franco-German-Swiss Upper Rhine Conference and the tripartite congresses. It also represents Switzerland in this Conference's working groups or in the project groups of the "*Interreg Rhin Supérieur Centre Sud*" programme.

At European level, the Regio Basiliensis has participated in the creation of the Association of European Border Regions (AEBR, Strasbourg 1971) of which it assumes the role of vice-chair. In the 1980s, it collaborated within the Council of Europe in creating the Assembly of European Regions and has taken part in the Standing Conference of Local and Regional Authorities of Europe (CLRAE).

Lastly, in the field of basic research, in 1975 the Regio Basiliensis and the Foundation for Confederal Collaboration set up the Institute for Research into Federalism and Regional Structures.

3. PARTNERS IN THE UPPER RHINE

Numerous institutions and organisations, both private and public, deal either exclusively or partly with issues linked to the Upper Rhine Regio.

The following institutions are partners of the Regio Basiliensis through its general secretariat:

- for Germany, the "Freiburger Regio" association in Breisgau

- for France, the "Haut-Rhin Regio" in Mulhouse

- for Switzerland, private and public institutions from the cantons of Basle-town and Basle-country (university, chamber of commerce, Christoph-Merian Foundation), but also other Swiss cantons (Foundation for Confederal Collaboration).

The following bodies are partners of the Regio Basiliensis through its international co-ordination department:

- for Germany, the Regierungspräsidien (regional councils) of Freiburg in Breisgau, Karlsruhe (Baden-Württemberg) and Neustadt (Palatinate), the regional associations of "Südlicher Oberrhein" Freiburg and "Hochrhein-Bodensee" (Waldshut) and the Lörrach Landratsamt;

- for France, the general secretariat for regional and European affairs (SGARE) of the Préfecture of the Alsace Region (Strasbourg), the general directorate of the Conseil Régional of Alsace (Strasbourg), the *département* executive sections of the Conseil Général of the Haut-Rhin (Colmar);

- for Switzerland, the administrative and governmental bodies of the cantons of Basle-town and Basle-country, cantonal bodies from the rest of north-west Switzerland and federal bodies.

With these and its other partners, the Regio Basiliensis is a member of the following committees for transfrontier co-operation:

- the Franco-German-Swiss Intergovernmental Commission, the Franco-German-Swiss Upper Rhine Conference and their working groups responsible for implementing the basic programme;

- the tripartite Congress, *ad hoc* working groups and project groups;

- the Interreg "*Rhin Supérieur Centre Sud*" and its project groups;

- ad hoc Periodic International Co-ordination Meetings;

- Upper Rhine Development Forum

- Association of European Border Regions (ARFE)

- Assembly of European Regions

- Standing Conference of Local and Regional Authorities of Europe (CLRAE)

4. CHRONOLOGY OF TRIPARTITE CO-OPERATION

The following stages have shaped tripartite co-operation in the Upper Rhine region:

- 1963: the idea of co-operation on the scale of a European border region emerges for the first time in Basle with the foundation of the Regio Basiliensis association, characterised by the participation of representatives from political (canton), economic (companies) and scientific (universities) life.

- 1965: creation in Mulhouse of the "Regio du Haut-Rhin," entrusted with the same tasks and declared French partner of the Regio Basiliensis.

- 1971 to 1975: the Regierungspräsident of Freiburg in Brisgau, the Lörrach Landrat, the Prefect and the Conseiller général of the Haut-Rhin *département*, a member of the governments of Basle-town and Basle-country and a group of experts meet twice a year as part of the "Tripartite Conference". This is prepared and organised at the Periodic International Co-ordination Meetings in collaboration with the bodies responsible for regional development in each part of the Regio.

- From 1972: meeting of the fourteen bodies of the Rhine corridor in the framework of the Upper Rhine Developers Forum, chaired by the mayor of Heidelberg: collaboration on a voluntary basis, consultations, publications.

- From 1976: the Franco-German-Swiss Intergovernmental Commission, with international status, replaces the Tripartite (Regional) Conference. It is made up of three delegations of eight members, each led by the foreign affairs minister of the relevant country. It has overall responsibility for the Tripartite Regional Committee and the Bipartite Regional Committee, which meet twice a year as a rule.

The Regional Tripartite Committee is made up of three delegations of eight members headed by the Freiburg Regierungspräsident, by the Prefect of the Alsace Region and by a member of the Basle-town government.

The bipartite regional committee is made up of two twelve-member Franco-German delegations.

- From 1980: development of the Tripartite Regional Committee work programme with six main themes: economy, transport, environment and energy, culture, media, regional planning. Each of these themes is given to a working group (separate from the *ad hoc* working groups set up as needed, as was the case after the Schweizerhalle disaster). Recently, the groups started to deal with all of the terms of reference assigned by the Intergovernmental Commission: regional economic policy (since 1976), environment (since 1976), culture (since 1978), rail transport (since 1978), regional transport policy (since 1983), new media (since 1985) and regional/spatial planning (since 1988).

- 1982: signature of the European Convention on Transfrontier Co-operation between regional associations and government bodies with a view to developing and consolidating neighbourly relations.

- 1985: setting up of the "Freiburger Regio-Gesellschaft" with identical aims to the Swiss and French associations established in the 1960s. Declared their partner at the same time as the Landkreise of southern Upper Rhine and western Hochrhein.

- 1985 to 1987: the minister president of Baden-Württemberg, the President of the Conseil Régional of Alsace and a member of the both the canton governments of Basle-town and Basle-country chaired the "Universities and Region symposium," the annual gathering university research representatives in the Upper Rhine and the world of business. On this occasion, ten project groups finalised an innovation programme to supplement the official basic programme.

- From 1988: the Tripartite Congress has replaced the "Universities and Region" symposium. It is an opportunity to compare the results of the working groups (on the basis of the 1980 basic programme) and those of the project groups (1985 innovation programme) and to deepen reflection on the basis of a general theme (transport in 1988, culture in 1989, environment in 1991, the economy in 1992), in the presence of numerous political figures. In all three countries, the promotion of the congresses is the responsibility of the political bodies represented on the Intergovernmental Commission. The world of science and the economy are involved in the organisation of these congresses, for which the three delegations alternate responsibility.

- October 1989: signature of the Declaration of Intent for a common approach to transfrontier development by the representatives of the Land of Baden-Württemberg, the regional associations of "Südlicher Oberrhein" and "Hochrhein-Bodensee", of the DATAR, the prefectures of Alsace, the Alsace Region, the Haut-Rhin and Bas-Rhin *départements*, the cantons of Basle-town and Basle-country and the EC. On the basis of the development plan, which is financed jointly, contributions to the co-financing of nine trinational projects and twelve binational projects, in the framework of the interregional guidelines, can be guaranteed. Since 1992, nineteen project groups and the pilot committee have been working on various projects.

- November 1989: Convention for a "European Confederation of Universities of the Upper Rhine - EUCOR". Following the three "Universities and the Region" Symposiums (1985 to 1987), the Universities of Basle, Freiburg, Karlsruhe, Strasbourg and Mulhouse institutionalised their collaboration on common courses

of study and other projects (eg REKLIP, a regional climatological project).

- December 1989: the President of the French Republic, the Chancellor of the Federal Republic of Germany and the President of the Swiss Confederation came to Basle on their high-speed trains - TGV, ICE and Rail 2000 - on the occasion of the 25th anniversary of the Regio Basiliensis. They signed a tripartite Rhine declaration containing a twelve-point programme on the main Upper Rhine projects.

- 1990: the "Conference of Upper Rhine Mayors," initially with sixteen members, was set up at the initiative of the towns of Freiburg im Breisgau and Mulhouse. It was hoped to institutionalise local communities along the lines of the COMREGIO, as a complement to the well-established state-regional level.

- From March 1991: the Regio Basiliensis, the "Haut-Rhin Regio" and the "Freiburg Regio" have consolidated their co-operation by setting up the "Co-ordinating Committee of the three Regios - KAR" which meets three times a year. It is made up of four members of each of the three steering committees.

- From November 1991: the Regional Committees of the Intergovernmental Commission (see 1976) have met jointly and under the new name of the "Franco-German-Swiss Upper Rhine Conference." It meets twice a year and is made up of one German and one French twelve-member delegation and a Swiss delegation of eight members.

- 1992; in order to complement the official state level (Upper Rhine Conference) and the local/municipal level (COMREGIO level) voices are being heard in favour of the creation of a level of regional meetings in the framework of an "Upper Rhine Council" made up of regional elected representatives.

5. RESULTS

As we have seen, the specific activities of the Regio Basiliensis are conducted not only at the level of the association itself but also at the level of official tripartite meetings. It is thus not possible to interpret its results and successes superficially without taking into account the circumstances under which they have been achieved.

In this respect, the Regio Basiliensis has succeeded above all in establishing and maintaining numerous contacts, most of which go beyond frontiers, and building up a permanent network of information, establishing and above all institutionalising regular co-operation both with public authorities within the framework of the basic programme or that of the Interreg as well as with the universities and economic circles as part of other programmes.

This activity has also had repercussions in other spheres of public life, providing an incentive to more informal activities, all inspired by the Regio.

Economy

Analysis of the region's economic development, its strengths, its weaknesses; economic prospects.

In practical terms we have, for example:

- defined, and as far as possible, improved the legal status of frontier workers and published a legal guide;

- compiled and updated the "Regio study of the economy of north-west Switzerland", which has been a reference work on this subject for the last 14 years;

- participated, in the framework of the Interreg programme, in the creation of the European Management Centre at Colmar.

Transport

Promotion of a regional public transport policy; development of a transport centre around the Basle-Mulhouse-Freiburg axes.

In practical terms we have, for example:

- drawn up construction plans for rail access to the "Basle-Mulhouse-Freiburg EuroAirport';

- collaborated in drawing up a "Regio timetable" every year since 1977, on sale at newspaper stands and in railway stations, tourist offices and bookshops;

- participated in the creation of an international tariff association for the development of short-distance traffic and the "Regio-S-Bahn" (RER Regio) project.

Environment and energy

Examination of the conformity of large-scale energy-supply projects with current ecological standards; adoption of environmental protection measures.

In practical terms we have, for example:

- supported the campaign launched by the authorities to handle the aftermath of the Schweizerhalle catastrophe (Sandoz), participated in the tripartite *ad hoc*

working groups "Improvement of safety regulations," "Damage to the environment/ Decontamination measures/Compensation" and "Towards better information";

- joined the REKLIP project, which has a budget of several million francs and brings together twenty groups of researchers from academic or political life or from private companies (study of the region's climate using standardised measuring systems, mathematical climate modelling, implementation of a permanent climate observation system for industrial incidents or for the purposes of environmental protection).

Culture

Promotion of the region's cultural development; contacts with cultural institutions, co-ordination of activities on all sides of the borders.

In practical terms we have, for example:

- set up the "Regio Youth Symphony Orchestra";

- co-operated with the "Regio Educational Circle" (annual school camps, school excursions guide, tripartite school project);

- created the Regio Cultural Foundation (promotion and financing of cultural activities, eg the "History of the Upper Rhine" colloquies).

Media/communication

Development of a regional media policy; promotion of direct regional information; prospects.

In practical terms we have, for example:

- participated, notably by taking the necessary steps to obtain a radio concession, in the local radio project "Rhywälle", in collaboration with newspaper publishers from north-west Switzerland";

- collaborated in the tripartite working group "New forms of information and communication" (harmonisation of tariffs for telephones and ionised lines entitled ""Metropolitan Area Network"; compatibility of Videotex, BTX and Minitel; compilation of a trilingual glossary).

6. REACTIONS

When an association such as the Regio Basiliensis has such a wide variety of activities, it goes without saying that it provokes a variety of reactions.

The most important thing, however, is that the governments of the three states concerned realise the reality the Upper Rhine Regio represents, even if they do not always approve of what is being done. The existence of the Intergovernmental Commission and the meeting of heads of state in December 1989 is an illustration of the interest shown by governments in the "Upper Rhine Euregio".

As university academic studies show, along with the numerous conferences on the subject and the reports that have appeared in newspapers, the Regio is recognised everywhere as a model of both regional and international co-operation.

7. LOOKING FORWARD TO 2013

The Regio Basiliensis has set itself the goal of contributing to the drawing up of regional projects in each of the fields set out above by continuing to play its role as the driving force behind relations between the region's various partners.

As far as the medium and long term are concerned, interregional solutions are needed for the problems facing the frontier region of north-west Switzerland. This applies in particular to the fields of health, higher education, vocational training, culture etc. For the Regio Basiliensis, this will also mean participating actively to make Switzerland more aware of the Regio's problems. Furthermore, it will endeavour to step up collaboration with those Council of Europe and European Community bodies responsible for transfrontier co-operation. The deadline for fulfilling long-term objectives will extend until 2013, our association's 50th anniversary. If we have managed to complete our work by this date, we will probably be able to dissolve the Regio Basiliensis association. If we have not attained our objectives, then we will continue to co-operate in the construction of the "little Europe of the Upper Rhine".

In more general terms, there will be a principle guiding our actions: that of plurality. Frontiers can only be overcome if we reconcile the various present and future interests and involve the people, the State and economic and scientific circles in our efforts.

8. CONCLUSIONS

Transborder spatial planning should concern itself more with how to do things and less with what to do. Traditional planning is an extremely useful tool, but one that is generally limited: it deals with the question of what to do. Nevertheless, the well-known development strategies for key towns etc. are often pure *ex post facto* improvements to irrational planning decisions. We should stop setting our sights on final outcomes and in doing so better achieve planning strategies.

As a long-standing cantonal parliamentarian, I have learned to be wary of experts in the field and on a personal impulse have granted myself the title of "universal amateur". Let us play along and be universal amateurs. Spatial planning must become consistent and be preceded by integrated creative economic, political and cultural measures in key areas both by and for the citizens. We would thus be asking the "how" question, which means developing "solid guiding principles" instead of following an abstract concept. And what does all this mean? It means accepting the regions of Europe, accepting our secret little republics, but never proclaiming them, as "transcending borders" should never become tantamount to drawing new frontiers.

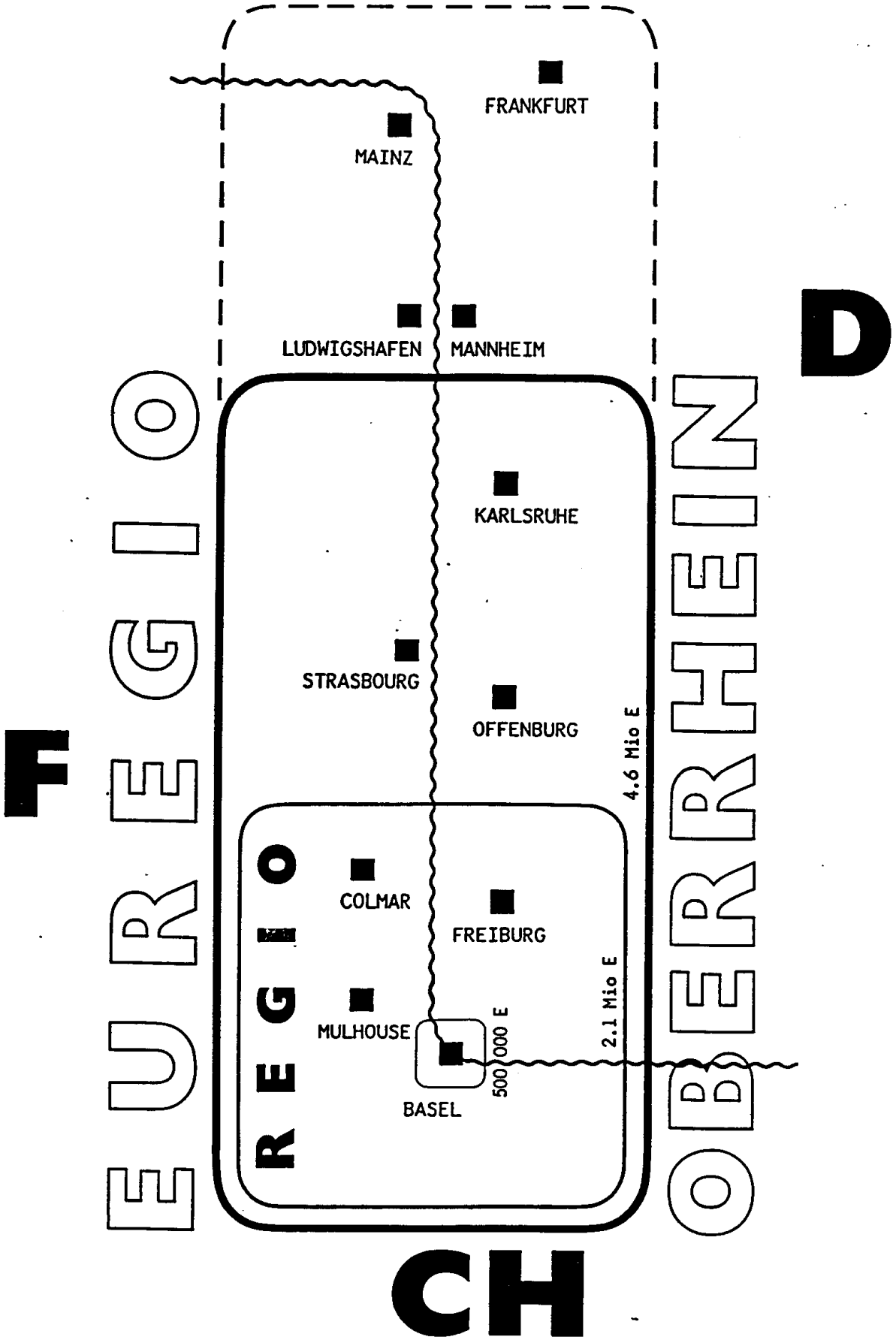
Europe is today living under the curse of Woodrow Wilson's well-meaning maxim, formulated during the first world war; he said that all people would enjoy self-determination in creating an individual nation. I say curse because the nation state is no solution to our problems. Where minorities are in vain seeking their identities, Kurdish, Yugoslav or other conflicts will inevitably lead to deportation and cleansing, as seeking statehood as a means to this identity cannot be an aim in itself. We should thus not create fixed frontiers for ethnic groups but instead provide throughout Europe for:

- human rights for each individual

- federal structures in order to decentralise power and allow decisions to vary according to regions

- in keeping with the principle of subsidiarity, the transfer to the regions of the political powers to determine the details of transborder integration.

These three premises would allow tomorrow's Europe to leave yesterday's national borders behind without having to abolish them.


FRANKFURT
MAINZ
LUDWIGSHAFEN
MANNHEIM
KARLSRUHE
STRASBOURG
OFFENBURG
4.6 Mio E
COLMAR
FREIBURG
2.1 Mio E
MULHOUSE
500 000 E
BASEL
EUREGIO
REGIO
OBERRHEIN
D
F
CH

NEW DIMENSIONS IN EUROPEAN REGIONAL/SPATIAL PLANNING: EXPERIENCES WITH TRANSBORDER CO-OPERATION IN WESTERN AND EASTERN EUROPE

Regional planning for the city-triangle Vienna-Bratislava-Györ: experiences and expectations

Mr Peter SCHNEIDEWIND
Austrian Institute for Regional Planning (ÖIR)
Vienna

The area Vienna-Bratislava-Györ

Since the fall of the iron curtain, the area at the frontiers between Hungary, Slovakia and Austria have been given special attention. It is not only from the Austrian point of view that the structure and characteristics of this area have changed fundamentally overnight.

First of all I would like to briefly describe this area.

Vienna and Bratislava are 60 km apart, from Vienna to Györ it is twice as far. The distance from Bratislava to Györ is approximately 80 km. The total number of inhabitants of the three cities together is roughly 2.1 million, in the hinterland areas it is almost another million. The sizes of three cities including their hinterland regions vary greatly. The proportion is roughly 9:3:1.

This results in a population density of approximately 300 inhabitants/sq. km for the area delimited by the three cities. This corresponds approximately to the density of *Länder* in the western part of Germany such as Hessen or Baden-Württemberg, and is still, however, clearly below the level of Nordrhein-Westfalen and other densely populated urban areas in western Europe.

If one reduces the area to the axis between Vienna-Bratislava then for a surface of 3,000 sq. km there is a population density of roughly 900 inhabitants/sq. km.

The three regions are also very different from one another in respect of their functionality and dynamics of growth. Vienna and Bratislava have the same status within the regional system of their state's territory - including the extreme peripheral location within the respective states. Györ however is a larger provincial capital that shares its function with the city of Sopron roughly 80 km to the west according to the new administrative division (Komitat Györ-Sopron).

The cities of Vienna and Bratislava have a past of completely different dynamics of growth while enjoying the same status within the state. In Vienna the population has decreased at high rates since the 1960s, while Bratislava recorded extraordinary high population growth rates in the period between 1970-1991 of more than one third (+1.8% per annum). In comparison to developments in the respective urban regions the growth rate gap is not as high but nevertheless considerable. The degree of concentration of the population in the capital of Austria is at 20% still clearly higher than in Slovakia (9%). In Vienna the dynamic of development - as in almost all western European countries - shows a tendency of suburbanisation with respect to its demography and economy, while in Slovakia the concentration on the cities takes place mainly at the cost of the hinterlands. This leads to very different inner-regional patterns of mutual dependencies and problems. The city region of Györ has also experienced a very dynamic period of development over the past 20 years. In comparison, however, the relation between city and

hinterland is more balanced than in Bratislava. Since the beginning of the liberalisation of the Hungarian economy long before the fall of the communist regime, the region profited from its vicinity to a western frontier and had a relatively good economic structure to start out with.

The geography of the area is dominated by the Danube river. Towards Győr the region opens up to the Small Hungarian Lowlands. To the north and north-east of Bratislava are the Small Carpathian Mountains and to the west and south-west the foothills of the Alps which form natural frontiers. To the south of the Danube (on the Austrian side also to the north) the area is used intensively as agricultural land. Along the Danube in the frontier area between Slovakia and Hungary there are important sources of ground water on which large parts of both countries depend. The high ecological value of the landscapes connected by the course of the rivers March and Danube as well as of the area around the Neusiedlersee have led to extensive environmental protection measures. On the southern banks of the Neusiedlersee an area on both sides of the border between Austria and Hungary has been declared a national park. There are plans to convert large parts of the Danube and March river meadows into a national park.

Regional relations

The area described is divided by three state frontiers and thus separated into three regions. The politically impermeable frontiers and the low degree of economic interdependency at these frontiers are factors that lead people in these areas to live with their backs turned on each other. The political opening up inspired hopes of a change for the better. However, what did come into view was the enormous economic gap that existed. Depending on the indicator (and source quoted) the economic levels when compared range from 2:1:10 (for example, wages in industry 1990) to 1:1:6 (GDP per capita in US dollars) between Hungary, Slovakia and Austria. In view of this disparity the consequence was a re-assessment of the regional situation which lead to a shift in attitude from hope for new opportunities to a more defensive attitude. A reason for this is also the fact that this economic gap will be here for a long time.

The Austrian Institute for Regional Planning (ÖIR)[1] completed a study in which four different scenarios were elaborated on the economical and political development of the countries of eastern Europe undergoing reform, based on different conditions within the countries and varying influences coming from western Europe. In the most favourable of these scenarios, a (slow) decline of the economic disparity levels between eastern and western Europe will only begin to take place during the second half of a period of 15 years. Most other colleagues working in this field have come to more or less the same prognosis. (However, at this point I would like to mention that the prognoses made in the neighbouring countries undergoing reform are quite different from these. There, hopes still prevail that the economic disparities with western Europe will be overcome within a few years.)

If one takes a closer look at the experiences made in cross-border relations between the three cities of Vienna-Bratislava-Győr, then one soon realises that it is not meaningful to compare all the relations at the same time. Even if many characteristics are the same, in detail the differences are stronger. The relations between Hungary and Austria are politically and economically different from the relations between Slovakia and Austria, and to the same extent the regional relations that exist between the capitals of Bratislava and Vienna are completely different from those that have developed at the border regions between Austria and Hungary, the latter being dominated by the region Győr-Sopron-northern Burgenland-Wiener Neustadt. The Austro-Hungarian border region has a longer history of co-operation during and after the "socialist" era. This can be seen in the much higher degree of institutionalisation of relations in, for example, the establishment of a Regional Council which consists of representatives of Burgenland and the four bordering Hungarian Komitats.

I would therefore like to concentrate on the relations between the urban regions of Vienna and Bratislava as they are now and their future prospects.

The border region Vienna-Bratislava

The analysis of cross-border relations at the Slovakian-Austrian frontier, as for all former borders to the eastern bloc, is difficult because similar experiences in Europe are lacking. In spite of the considerable disparities within western Europe, there are no two bordering countries that have disparity gaps in their per capita GNP of more than 1:2. In the industrialised world, one has to go to the border region United States-Mexico to find similar prosperity gaps at borders such as the ones that now exist between the EEA countries and the countries of eastern Europe undergoing reform. This also serves to illustrate the fact that such enormous prosperity gaps can be maintained for very long periods of time (and also that this gap at the frontier is lower than the average of the states concerned. The GNP per capita of the Mexican border region is 50% over the national average, for the American border regions it is mostly below the national level.

It is hardly possible to systematically analyse the experiences made until now because of the brief period

of existence of the "new conditions". In the three most prominent fields - politics and administration, economy, transportation - the "new conditions" can described as follows:

In the field of **politics and administration**, very intensive relations were soon promoted and developed by both sides on the state level as well as between the capital cities.

The function of Vienna as gateway to the West for Bratislava (and Slovakia) has been established with the apparent consent of both sides. With regard to the labour force there also seems to be consent on keeping the frontiers as impermeable as possible.

The opportunity of combining high (Austrian) wages with low costs of living (Slovakia) on the one hand, and the high demand for relatively cheap and (on the average) highly qualified labour by Viennese enterprises (especially in the productive sector) on the other, make the Viennese market very attractive for labour from Bratislava. This objective attractivity was reduced considerably by political measures. These include, among other things, a restrictive employment policy towards foreigners in Austria, a lack of bilateral accords on social security contributions and income tax such as exist with bordering countries on the western frontiers (to the advantage of Austrian wage earners), and the relatively high cost for transportation to and from the workplace within Austria. A noticeable increase in cross-border commuters would also require increasing the capacity of border crossings. The fact that there is only one international roadway and railway crossing between Bratislava and Vienna, to be precise between Slovakia and Austria, means waiting periods at the frontiers of at least half an hour and this is also an effective barrier to a (highly) integrated labour market. Of the increased number of foreign workers that have been registered during the past three years on the labour markets of Vienna and the eastern region of Austria, (in absolute numbers) only a small number are from Slovakia. The massive storming of the Viennese labour market by Slovakian workers has not occurred until now.

From an **economic** point of view Bratislava is of little importance for the economy of the region of Vienna. To date there are no exact data on the number of Austrian companies engaged in activities in Bratislava (and Slovakia). There is no doubt that the Czech Republic and above all Hungary - at the borders and in Budapest - are considered much more attractive.

Trade volume between Bratislava and Vienna is also much lower than between the Hungarian cities (in particular Sopron but also Győr and other smaller ones) and the region of Vienna. This is probably also due to the fact that trade relations are older and more balanced in quantities than those between Bratislava and Vienna, whereby Vienna has more to supply than the other way around.

A concrete economic project was concluded a few months ago between the Slovakian Government and Austria (Burgenland and on a federal level) to build a "transborder business park Burgenland-North/ Bratislava". Planning work has already begun. The objective of this business park -of the rather modest size of 70-100 hectares - is seen mainly as a foreign policy and economic measure. The business park has the aim of "reinstating cross-border economic relations", of serving to "advance and support the process of transformation taking place in Slovakia" and finally of promoting "an orderly development of the axis Vienna-Bratislava". The decision on the location will be reached this spring. In the medium term, ie 3-5 years, roughly 450 jobs will be created. The symbolic value of this project is doubtless higher than the real effect it will have on the economy. It should be emphasised, however, that it is oriented towards the situation in Burgenland with regard to the size and type of the project; the northern part of Burgenland being considered the potential hinterland of Bratislava.

Since the elimination of the iron curtain, the main focus in relations between Austria and the former eastern bloc has been on transport. In Austria it is expected that the transformation of the economies in the countries of the East undergoing reform shall also bring about an enormous rise in the amount of traffic especially on roadways. In spite of, or maybe because of the relatively low traffic densities at the end of the 1980s, the level of acceptance of rising traffic is very low. The situation is made worse by fact that the capacity of the roadway network is still very limited. Noticeable relief was brought about by the partially completed expressway A4 from Vienna to Győr. It is planned to be completed to the frontier by 1994.

A high-speed highway connecting the A4 to Bratislava on Austrian territory is projected but is not yet being planned. The plans to extend roadways meet massive resistance from ecological lobbies, who would prefer to see the politically declared priorities of extending the railway network implemented first.

The railway network is particularly in need of improvement and extension. At present there is a local passenger train between Vienna and Bratislava north of the Danube, which connects the two cities in 67 minutes since the measures to shorten travel times in the year 1990 were implemented. This is only 6 minutes more than the fast train took in 1914 for this route. At that

time, there was an additional railway connection resembling a tram between the two cities. The main railway route planned for the future shall branch off from the connecting route Vienna-Györ at Kittsee to Peterzaika and will merge there with the underground railway now being planned.

In the field of freight transportation, the lack of adequate railway infrastructure hinders the expansion of the loading capacity to the high extent originally planned for rail transport. The scenarios of the future elaborated for Austria count on a fivefold increase in passenger traffic and the tenfold increase of freight traffic. The actual rise in cross-border traffic during the last three years has reached the upper limits of these scenarios, but now it is believed that after the reorientation of the flow of trade from inter-Comecon to East-West, the traffic loads will not rise as high in the future.

I do not want to stop at a description of the yet very unclear development trends in regional relations between the cities of Vienna and Bratislava. On the contrary I would like to discuss the long term prospects of these relations. First, however, I would like to mention two things:

Today is, no doubt, an era of great upheavals. The economic and political defeat of the "Kasernensozialismus"[2] and the redrawing of the political map of (eastern) Europe and the practically simultaneous efforts to intensify the integration process of the EC (and the EEA) are factors that make any certainties on future developments quite dubious. Only when the fog veiling the restructuring taking place clears will it again be possible to carry out planning work - especially regional planning - again.

Planning is only meaningful in and for "linear times", that is times of linear developments (although the lines can be very different). And even in such "linear times" (one might also say in times when framework conditions are more or less constant) certain areas of life move to very different metronomes - if you permit me to use this analogy from the world of music. For the news media it might be the hour; for stock exchanges the day; for industry a few weeks; for politics the period of tenure (four or more years). For changes in regional structures - if related to infrastructure - this period is particularly long as well as for changes in the culture of a region, ie social habits and patterns of behaviour. In both cases the time dimension involved is measured in decades. The valid unit is a generation. This long-windedness of regional and social change is nothing new, but at points of transformation and in times of upheaval it frequently gets out of sight. This results in information from different fields often being directly related to each other. The growth forecasts for the coming years are "proof" of the attractivity of locations; the unemployment rates of the last few quarters serve to substantiate the necessity and good sense of investing in infrastructure, etc.

At this point I would therefore like to conclude that decisions and activities made in regional planning will make a difference primarily for the next generation. This applies for measures and projects carried out and for those not carried out. For this reason, these decisions should be made as independent of daily events as possible and should keep long-term determinants for the development of regional systems in mind.

Secondly, the question of the future relations between the border regions along the frontier with the former eastern bloc in general and between Vienna and Bratislava in particular have been discussed until now mainly from a bilateral point of view. The notion prevails that the enormous economic gap at this now open frontier should be reduced in the interest of both sides ("regional policy of open borders"). This perspective however is too narrow in the case of these two capital cities. A re-evaluation of these (and other) cities within the city system of an integrated Europe is now being demanded, and quite rightly so.

The EC document *Europe 2000* considers both the cities and their functional development and interrelations and the border regions, in particular those of the former eastern bloc, particularly important for the development of the regional structure of Europe. Some regional researchers are already elaborating new large-scale axes from Berlin via Prague and Vienna/Bratislava to Budapest and further on to Bucharest. This is the background to the long-term designs for development for Vienna-Bratislava that I would like to discuss.

The twin metropolis Vienna/Bratislava

The notion of two big cities growing together - not only in relation to settlement and geography but also in a functional sense - is very alluring to regional planners and to politicians. One might be only able to smile at the race to become one of the top ten European urban regions but that does not change the fact that many people set their social and economic aspirations on such comparisons of size. From a developmental policy point of view it is also quite sensible to envisage such a twin metropolis.

In roughly twenty years from now the twin metropolis could look like this:

The two cities have grown by at least 300,000 inhabitants each. The population of the twin metropolis is

roughly 3 million, taking the axis and the relevant hinterland areas into account and the population continues to grow. Vienna/Bratislava is thus one of the fastest growing urban regions of western Europe. South of the Danube a narrow but almost closed settlement strip has developed along the infrastructure lines. The social problems are enormous in both partial cities especially in the older residential areas; massive large-scale housing programmes alleviate the situation. The new main areas of settlement are north of the Danube in Vienna, in Bratislava to the east as well as in new smaller satellite towns in the north. The attractivity of the twin metropolis is based on the intentional division of functions. In one city (urban region) resource intensive activities especially in the productive sector, dominate, while the other has specialised in logistic and trade functions for the central and eastern European area. The central location of the twin metropolis gives it a catchment area much larger than the smaller area of its hinterland. In international comparison, locating the headquarters of European institutions and large events has given the metropolis a competitive edge. A further key to success could be the presence of international institutions of training and further education in the fields of technology and economics that would dominate the twin metropolis culturally. The scope of production (services and goods) of the region is impressive because of its wide variety rather than specialisation.

A few years ago the inter-city transportation network Vienna-Bratislava was established. In spite of the rapid rail connection and IC trains at hourly intervals (travelling time 40 minutes) the daily automobile traffic jams on the access roads in and out of the partial cities continue to get worse.

Many milestones will have to be passed on the way to such a scenario. The most important ones are in my opinion the following because they are more or less indispensable:

- The declaration by both cities and states to work towards a concerted and expansive regional development - with of course the necessary participation of affected local/regional authorities outside the cities.

- Institutionalisation of relations between the cities on a political and administrative level.

- The massive expansion of infrastructure whose planning and financing will enter its decisive phase in the next five years, and for which international financial aid will probably be necessary.

- Successful organisation of international events on a European and global level; the most advantageous way would be the post-event utilisation of the buildings by inter- and supranational (educational) institutions.

- Intensive housing construction and social programmes to overcome the problems related to immigration (consensus being necessary to allow immigration in the first place. Without immigration there will be no twin metropolis. Dynamic development (even if only economic) is based on attractivity. Major attractivity and open borders lead to migration. The means of controlling this migration - without damaging the attractivity - are very limited).

Since all of these points will have to have been realised in the next ten years, it is possible to evaluate the probability of their realisation on the basis of today's expectations. In this analysis one thing immediately becomes apparent: the realisation of the twin metropolis is very risky as far as the purely technical-economic steps of implementation are concerned and the undesired social, and in particular, ecological "side" effects. The sustainability of such a development is probably very difficult to make plausible today.

For Vienna the special risk of having too strong relations with the "East" also exists, which could lead to the assessment of its orientation to the West as being too weak - an opinion maintained today by many analysts.

Vienna and Bratislava: neighbouring cities

The logic of the twin metropolis lies in taking joint advantage of the synergy arising from the quality of its location in Europe, while the second alternative - which is at least as plausible and sensible - lies in developing long-term relations between the two cities as neighbours. By neighbours I mean living next to each other (in peace and friendship) without relating functionally to each other but to environmental systems largely independent from one another. (Comparable to the neighbourly relations between households in apartment buildings.)

The development of both cities could of course be quite different, even in this case, but the functional attractivity on a European level is less probable for both cities alone. The cities on their own are poorly equipped for the competition related in particular to the location of European functions. A greater number of cities with similar characteristics are also competing for supra-regional and supranational resources.

In Vienna, the Institute for Economic Research recently elaborated three scenarios that differentiate according to the functions fulfilled by Vienna within the new Europe. They range from "regional centre at the periphery" to "supraregional centre for central Europe" and

"international centre for central Europe". Without going into details at this point, I would like to say that the scenario of neighbouring cities is more compatible with the first of these schemes.

What will the region look like - formed according to these principles - in two decades?

The dynamics of the population development (due to immigration) will have calmed down after the wave at the beginning of the 1990s. The restoration and renewal of cities is being carried out at high speed. This results in the rising significance of the construction industry for the economy of the city. Bratislava has specialised in (national) administrative functions and has accepted massive de-industrialisation in favour of other Slovakian locations. The services branch now matches its Viennese counterpart. The landscape between Vienna and Bratislava has only changed slightly in appearance. Tourism has increased considerably and has become the economic basis of the surrounding region. This is closely related to the creation of large environmentally protected areas along the Danube and the Slovakian-Austrian border. The border is still not very permeable because of this; the labour markets are almost completely separate; the transport infrastructure is the same in comparison to the mid-1990s. An exception is the close co-operation between the two airports that are connected by a bus shuttle service which runs at close intervals.

It might appear to be the case that this development has only taken place because (planning) decisions have not been made, but one should not forget that the omission of decisions and measures (or preventing other interests from being carried out that would hinder "neighbourly" relations) can be just as difficult (for example on the labour market) as the implementation of large projects. However, it is true that this development will leave more options open along the way than the "twin metropolis".

The risks involved in the realisation of the idea of the neighbouring cities are (in the event of success) economical. In particular, Vienna will run the risk of a relative decline in its economic power and income levels. Bratislava would risk not making full use of the national potential of development.

Conclusions?

I have attempted to place the short history of the reinstated cross-border relations between Vienna and Bratislava in a long-term perspective in relation to regional planning. My intention was to illustrate that at the beginning of any linear planning designs there are a series of very important normative decisions to be made that involve many different regional levels.

For the most part, however, these decisions are not a matter of just facts and logic.

As a researcher, I have to leave the decision on which path of development should be taken to politicians, state officials and entrepreneurs. But this does not release me from the responsibility of pointing out at each crossing where the road really leads to in the end.

---

1. Schremmer, Ch.; Krajasits; C.: Szenarien zur Ost-Grenzöffnung und deren Auswirkungen auf die österreichischen Ost-Grenzregionen. Schriftenreihe des BKA Nr. 20. Wien, 1991

2. Robert KURZ: Der Kollaps der Modernisierung, Frankfurt/M, 1991

NEW DIMENSIONS IN EUROPEAN REGION/SPATIAL PLANNING: EXPERIENCES WITH TRANSBORDER CO-OPERATION IN WESTERN AND EASTERN EUROPE

The Vienna-Bratislava-Györ conurbation

Dr Géza TOMPAI
Ministerial Adviser
Ministry of Environment and Regional Development
Budapest

1. The Danube Region, as one of the significant urbanisation axes of Europe

The so-called "Danube Region" between Vienna and Budapest belongs to an important urbanisation axis of Europe. Here, the most important element of regional development is the Danube, as a source of water and a river transport route; but parallel with it the transport infrastructure along the Danube is becoming larger and more important. In the near future - as a consequence of the important changes in central Europe - dynamic growth can be expected in this area, and the recent inauguration of the Danube-Rhine-Maine canal will contribute to this process.

From an urbanisation point of view, there are two main points of concentration: the zone of the Budapest agglomeration and that of the towns Vienna, Bratislava and Györ. I consider that we cannot speak about either one of them independently, but only in the context of the Vienna-Budapest axis. In this report I will speak about the so-called Danube Region (naturally paying special attention to the Vienna-Bratislava-Györ conurbation), utilising firstly the results of research carried out by the Hungarian Institute for Town Planning (VÁTI).

2. Chances of elaboration of a common development strategy

a. Precedents

In the three countries concerned (Austria, Hungary and the former Czech and Slovak Republic), the various authorities and organisations dealing with regional planning initiated in 1990 a joint research project concerning this region's features and began to elaborate a common development concept. To this end, several conferences and working group meetings were organised, during which the institutions concerned (Austrian ÖIR, Slovak URBION and Hungarian VÁTI) agreed on the content and methodological requirements of the study to be prepared and drew up the timetable for this joint work.

b. The task

The joint project aims to determine the main guidelines for development, special features, as well as possibilities for regional co-operation between the countries in this area. The important elements on the Hungarian side are the following:

- evaluation of some sectoral development projects concerning the region;

- co-ordination of the local development projects, utilising the special features of the region;

- study of the possibility of creating a common national park (stretching over the territories of all the three countries) on the isle of Szigetköz, between Györ and Bratislava and also on a territory that needs special protection;

- determination of conditions, viewpoints of regional importance to be considered in the general regulation plans (master plans) of the settlements concerned.

The study relies mainly on data from 1990. It concentrates first of all on the evaluation of conflict situations and also analyses information drawn from different data. In this context, the most important category of material

examined is the topic concerning the system of the Danube barrage. During the elaboration of the development strategy, only a restricted period of time can be envisaged, because the dynamism of the socio-economic evolution is liable to influence regional processes.

c. Present situation

On the basis of the review and evaluation of the plans and research work previously carried out, it can be ascertained that:

- more important developments were not carried out in the region because they were to be realised in connection with the hydroelectric power system;

- these above-mentioned unrealised developments belong mainly to the field of settlement infrastructure, so they remain of importance;

- a change in concept is necessary in those cases where the basis of the regional development projects was the building of the water power system: now that work has been stopped on the Hungarian side, a new development strategy must be elaborated.

When we deal with the Danube region we cannot ignore the fundamental question of the Gabčikoba-Nagymaros hydropower plant, namely, what will be the final solution with the intermediary help of the European Communities or the decision of the International Court in The Hague?

3. Summarising evaluation

a. Spatial structure

The network of agglomerations, that is to say, agglomerating regions, can be considered almost finally established in western Europe, but in central and eastern Europe this development is still continuing. The facilities of the upper part of the Danube above Vienna are mostly utilised and these developments also influence the lower parts of the river. The resources of the Vienna-Bratislava-Budapest reach of the Danube are not sufficiently exploited, since the planned large-scale development (the Danube hydroplant) was liable to cause a level of ecological damage out of proportion to the hoped-for advantages.

The famous study carried out by the Athens Institute of Settlement Science considers the area along the Danube as the main urbanisation and infrastructural axis of the region. On this axis, predominantly of West-East orientation, the North-South axis joins through the Moravian hollow.

In the Danube region, the urbanised territories alternate harmoniously with the nearly natural ones and this alternation is characteristic of the environmental situation of the region and of its capacity to be exploited. Future developments should conserve this harmony.

The usual burdens on the environment are industrial production, agriculture and transport. Furthermore, in the region of Győr-Bratislava, the main concern is that the problem of the disposal and purification of sewage has not been solved, and this represents a danger for the unique natural feature of the region - the supply of 12-14 km^3 of drinking water situated in the subsurface layer of gravel.

The project for a joint national park to be created in the region is a particular one. The Hungarian Parliament, in conformity with the Hungarian proposal submitted in February 1991 at the Conference of the Danube States in Budapest, initiated the creation of three common national parks, one of which would be on the reach of the Danube between Vienna and Győr.

Of course, this decision concerns Hungarian territories, but the boundaries of the national park, from a practical point of view, could not be situated on the national border.

During the joint planning stage, it is necessary to ask the question whether the international prescriptions and requirements concerning national parks are in harmony with the particular features of the region, and also if the three countries interpret the requirements in the same way, and are willing to bring them into effect.

The Danube region is one of the developed regions in Hungary, so the data concerning its socio-economic development (demography, employment, sectoral structure of industry and agriculture, etc) are generally better than the national average. The data concerning the living conditions of the population of the region are also of a good standard.

The Danube region is a popular area for recreation and tourism. A major part of its territory consists of tourist zones, one of them being "Szigetköz" between Győr and Bratislava. These zones are situated mainly along the national border, therefore international (primarily transit) tourism also plays a role. In the case of transit tourism, it is important to underline that 52% of tourists arriving in Hungary enter the country here.

During development particular attention must be paid to the burden on the environment caused by the traffic, to ensure that it does not exceed the capacity of the territory in question. This concerns primarily Szigetköz with its unique natural features: the development of the

leisure industry must be consistent with environmental protection. Much international traffic passes through the transport network of the region, but the level still does not meet international needs and therefore it is necessary to develop it significantly. The most important development in this region is the construction of the section of the Hungarian motorway M1 which goes around Győr and its extension to the national border. In addition, one should mention the adaptation work being carried out on the Vienna-Budapest railway line to cater for high-speed traffic and also the development of the shipping and port infrastructure on the Danube in conformity with ecological requirements and European norms.

For the energy supply of the region the conditions are different. The electrical energy supply is ensured and no zones are excluded. Connections to Austria and Slovakia have been made and are still being developed. The gas distribution system is insufficient. The supply for the largest centres - such as Győr - is ensured by branching off directly from the gas pipeline situated to the south of the region, but it is necessary to finish the spine gas pipeline along the Danube. The supply of the Danube region with public waterworks is higher than the national average, but because of the protection of drinking water supplies under Szigetköz, the total supply has to be provided for. The loading of the Danube with sewage water from the River Morava on the Slovakian side is several times greater than on the Hungarian side, and thus the elaboration of a joint policy could mean an important step forward in the field of outlining and co-ordinating tasks.

b. Relationships along the border

Besides the traffic developments aiming at the improvement of relationships in the greater region, there is also a need to develop relationships in sub-regions. One aspect of this is the existing sub-regional transborder co-operation. Along the Austrian border the relationships between the settlements situated directly along the border have developed quickly in recent years. This was manifested in the production relationships, in the commutation (shuttling) of manpower and in the joint development of certain infrastructural networks, as well as in the opening of new border crossing points. Along the Slovakian border such quick development of relationships is not characteristic.

4. Next steps

The above-mentioned study showed the most important special features of the region, the level of development and the most important measures which needed to be carried out.

In the near future it is necessary to:

- co-ordinate the results of the study and adopt them in all the countries concerned;

- interchange between countries the results of the studies on the territories concerned;

- co-ordinate and accept the methods and the content requirements concerning the elaboration of a common policy.

The steps mentioned were partially implemented (mainly in the beginning) in conferences and bilateral committee meetings, but recently the impetus of the work has slowed. From the Hungarian point of view, we hope that in spite of the international dispute over the Danube barrage joint work can be continued, as we consider that paying attention to spatial processes and the co-ordination of developments based on the features of the region will facilitate a more effective utilisation of the resources. This is therefore in the interest of every country concerned.

NEW DIMENSIONS IN EUROPEAN REGIONAL/SPATIAL PLANNING: EXPERIENCES WITH TRANSBORDER CO-OPERATION IN WESTERN AND EASTERN EUROPE

Project on transboundary co-operation between market economies and economies in transition

The role of the ECE Project

Vienna-Bratislava-Györ

Dr Miluláš MOJZEŠ
Ing. Dušan SLIMÁK
Ministry of the Economy
Bratislava

Importance and position of the Bratislava-Vienna-Györ region in Middle Europe

The geographical position and natural conditions of this area as a whole have for some time provoked real interest in this natural cluster region. The small Danube hollow, with its high potential for agriculture and settlement development, combined with the demands for the transfer of material and population, has become an important area in the geometrical centre of Europe.

The special position of the region was enhanced by its strategic importance as an easily-crossed area between the Alps and the Carpathians (the Danube river forms the axis of the whole region). North-south and west-east transport routes have historically been used in this area.

This unique position has fostered socio-economic and ethnocultural development in the region, influenced by the mixing of different economic and political measures. One should point out, however, that whereas measures in the economic sphere have moved towards homogenisation of the region, political measures have radically delimited it.

From 1918 all three cities in the region belonged to the Austrian-Hungarian monarchy, with Vienna as the metropolis (2.1 million people) and Bratislava and Györ as more or less satellite cities, being about 30 times smaller.

After the fall of the monarchy, Vienna became the oversized capital of Austria. After the second world war, it became a metropolis situated on the periphery, on the borders of the two blocs, with a steadily decreasing population which is now down to about 1.5 million.

Györ has been developed in Hungary with the aim of creating 5-7 settlement centres with 150-200 thousand people. This would balance to some extent the oversized metropolis of Budapest, whose development resembled that of Vienna until 1918.

Bratislava, which has by stages taken over the role of cultural and economic centre of Slovakia, has increased in population from 70 thousand to 450 thousand inhabitants today.

This is a brief overview of the situation in the subregion as far as settlement and economic relations are concerned, at the beginning of the era of political opening-up and economic integration in Europe.

The situation can be characterised by the qualitative and quantitative weight and stability of the structures and functions of Vienna.

Bratislava, on the other hand, suffers from the lack of these structures, from the under-development of social equipment and services and the lack of a basis for their creation, and from an unsatisfactory transport and technical infrastructure.

The current situation is characterised in the case of both Bratislava and Györ by considerable structural changes to the economic base and by problems of unemployment.

The economic stability and prosperity of the Austrian region, together with the contrast between the financial incentive of jobs on the one hand and the economic recession of the two national regions lagging behind on the other, have caused a serious imbalance in the availability and creation of jobs.

The step-by-step creation of dynamic and balanced settlement and economic activities and urban functions is a basic requirement to ensure the future development of the sub-region.

In order to solve the problems of this frontier region, an important task is that of environmental protection: the area offers an enormously rich variety of natural and cultural heritage.

The eastern and western parts of the sub-region are split into two large European hollows - the Danube hollow and the Vienna hollow. These are separated by the Carpathian massif which ends at the Danube some hundred kilometres to the south. Both these hollows are infiltrated by the Danube where it has formed "arms" into a network of river islands and the remainder of the original woods.

Under the ground of Bratislava the huge float cone created a so-called inland delta through continual aggregation, with gravel-sand floats of a few hundred metres depth, nearly a hundred kilometres long and tens of kilometres wide. The area of floats is situated between Maly and Dunaj (the Small Danube) in Slovakia and the Moson Danube in Hungary. Its high-quality drinking water resources cover 14-18 m^3.

The defined area of the sub-region is the basis of the most important transport routes crossing Europe from east to west (the so-called Danube route). One of the most important routes (the Electrum route) is at present being transformed into a north-south highway and railway network.

In Bratislava and Vienna, about 50 kilometres apart, there are river ports, each with a turnover of 2 million tonnes of goods.

Both cities possess airports, but with substantial differences in capacity and quality. Vienna-Schwechat is an important international air transport centre, with about 3 million passengers a year, whereas Bratislava-Ivanka is mainly orientated towards domestic transport, serving about 0.5 million passengers a year.

Vienna and Bratislava are on the edge of the important pipelines of Druzba and Adria, whose considerable processing capacities are currently attracting interest now that they are being joined.

There is also now a project to build a highway and fast railway connection running from east to west.

The concentration of the above-mentioned activities in this area with its outstanding natural features and relatively high density of settlement structures, along with the currently unsatisfactory development of these activities caused by the border position of the area in the context of East-West relations, highlights the need for a re-evaluation of the situation and projects on the part of all concerned. This re-evaluation (regional plan) would be concerned mainly with the development of an integral system of an inland network of water, railway, road and air transport, trans-shipment facilities, interregional service transport centres of a European standard for the transit of continental flows of people and goods from east to west and north to south.

From the regional point of view, the plan aims to develop fast, interregional transport structures with sufficient capacity, forming part of a multi-regional system. This would then be utilised for developments in the sphere of economic and cultural relations between all three sub-regional national structures.

With the completion of the Donau-Mohan-Rhein water route, which together with its adjoining river routes should become one of the most important European economic axes, the question of developing the Donau-Morava-Odra river route, with the intention of connecting the Ostrava-Karvina region with the Donau river route, has also become topical.

The realisation of these projects might, however, compromise the protection of the unusually rich natural resource of the Moravian woods, which form an integral part of the woods of the Donau. Therefore it is desirable to re-evaluate the necessity of developing this transport axis, its implications on the economic and settlement profile of the Bratislava-Vienna-Györ region in a European or middle-European context, and its implications for the environment.

The criteria to be borne in mind are the minimal unwanted ecological implications for the natural and urban environment.

According to data, the region is defined as a compact system of adjacent administrative units. There are the districts in the Slovak Republic - Dunajská Streda, Bratislava (the capital), Bratislava region, Galanta,

Trnava, Senica; and the Czech Republic - Hodonín, Břeclav, Znojmo.

The political districts in Austria (*Bezirke*) are: Horn, Hollabrunn, Mistelbach, Gänsendorf, Vienna (*Land*), Vienna (*Umgebung*), Kornenburg, Tulln, Mödling, Baden, Wiener Neustadt (*Land*), Wiener-Neustadt (*Stadt*), Mattersburg, Eisenstadt, Neusiedl-am-See, Bruck, Leitha.

In the Hungarian area there is the Györ-Moson-Sopron district.

Population

The region today is characterised by the progressive demographic potential of Slovakia influencing the Moravian part of the region, with the degressive potential of the Austrian and Hungarian parts. There was a population of 4.411 million in 1991, the major part being in Austria - 53.6%. The Czech and Slovak area accounted for 36.7%; most of which were in the Slovak part of the region, while the Czech percentage was equivalent to that of Hungary - under 10%.

Demographic evolution has separated the region into 3 categories of population with the following characteristics:

a. Slovak, with a relatively high birth rate, relatively low mortality rate, high natural increase;

b. Czech, with a high birth rate, relatively high mortality rate (higher than in Austria but lower than in Hungary), and low natural increase;

	Population		Increase/ decrease 1980-1991	%
	1980	1991		
Bratislava	380.3	441.5	+ 61.2	+ 13.9
Bratislava-vidiek	144.1	145.2	+ 1.1	+ 0.8
Dun. Streda	104.1	109.4	+ 5.3	+ 4.8
Galanta	140.9	143.4	+ 2.5	+ 1.7
Trnava	227.8	233.4	+ 5.6	+ 2.4
Senica	143.5	146.9	+ 3.4	+ 2.3
Slovak part of the region[1] Total	1140.7	1219.8	+ 79.1	+ 6.5
Hodonin	162.3	162.0	- 0.3	- 0.2
Břeclav	125.0	124.4	- 0.6	- 0.5
Znojmo	115.2	113.5	- 1.7	- 1.5
Czech part[1] Total	402.5	399.9	- 2.6	- 0.6
Horn	34.6	32.4	- 2.2	- 6.4
Hollabrunn	50.3	47.6	- 2.7	- 5.4
Mistelbach	70.7	68.2	- 2.5	- 3.5
Gänsendorf	75.3	76.6	+ 1.3	+ 1.7
Wien	1531.3	1467.6	- 63.7	- 4.2
Wien-Umbegung	85.1	87.7	+ 2.6	+ 3.0
Korneuburg	56.1	58.1	+ 2.0	+ 3.4
Tulln	53.2	56.8	+ 3.6	+ 6.3
Mödling	92.2	96.1	+ 3.9	+ 4.1
Baden	108.4	111.4	+ 3.0	+ 2.7
Wiener Neustadt Land	61.7	64.0	+ 2.3	+ 3.6
Wiener Neustadt Stadt	35.0	34.3	- 0.7	- 2.0
Mattersburg	34.4	34.3	- 0.1	- 0.3
Eisenstadt	45.9	46.7	+ 0.8	+ 1.7
Neusiedl am See	48.5	47.3	- 1.2	- 2.5
Bruck/Leitha	36.9	37.3	+ 0.4	+ 1.1
Austrian part[2] Total	2419.6	2366.4	- 53.2	- 2.2

1. *Data from 1980, 1991 census.*
2. *Data in 1981, 1991 by Orok-Atlas zur räumlichen Entwicklung Österreichs.*

c. Austrian and Hungarian, with comparable characteristics: low birth rate (with a tendency to decrease), high mortality rate (critical in Hungary), and minimal natural increase (in Hungary the tendency is to decrease).

The demographic prognosis of the region is in accordance with these characteristics. According to this prognosis one might assume that there will be a further decrease in the total population in the Austrian, Hungarian and Czech parts of the region, and a further dynamic increase in the population in the Slovak part of the region. However, it seems more realistic to predict a smoother decrease in the population of the Austrian part (new economic trends are encouraging the inflow of population both from within the country but primarily from abroad); the stabilisation of the population or even an increase in the Czech and Hungarian parts of the

region; and an even more dramatic increase in the population in the Slovakian part of the region.

In the relatively near future one can assume that these demographic processes which have up until now differentiated the various parts of the region will temper and influence each other. This process will be very slow; more dramatic evolution may only be predicted in migration flows which will dictate the dynamics of the demographic process in the various parts of the region.

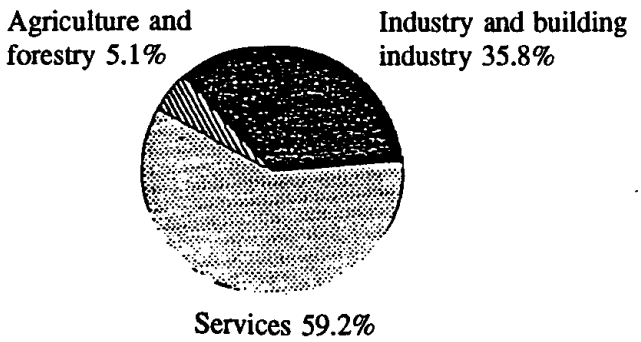
Economy and economic structure

The potential intensification of the renaissance of economic relations in the Vienna-Bratislava-Györ region, stimulated either by the bilateral political will to overcome considerable economic isolation or by efforts to join the Single European Market, represents a potential motivation for evolution. The chance to secure the advantages of economic activities through their development represents an economic motivation which transcends the borders of the region.

The Austrian economy, known for its positive development and stability, forms a basic element of the potential economic megaspace of the Vienna-Bratislava-Györ region. In contrast to the development in the Austrian sub-region, there has been a decline in the economy in the Czech and Slovak region, which influenced the realisation of evolutionary economic processes in 1990 and more particularly in 1991.

The different economic levels in the various parts of the region are reflected in the different economic structures on a national level. Although service activities are dominant in the economic structure as a whole, this is a consequence of the highly-developed service sector (according to output and employment) in the Austrian part (the difference is over 60%). One exception in the non-Austrian part of the region is the Bratislava metropolis, which resembles the Austrian model of economic structure because of its outstanding position and transregional importance for the Slovak Republic.

Economic structure of Vienna-Bratislava-Györ



It is possible to categorise the present economic situation in the region into three types of employment structure:

1. The Austrian part is characterised by a marked predominance of the service sector in comparison to the secondary sector, with a stable and minimal share of employment in the primary sector;

2. The Czech and Slovak part of the region is characterised by a slow increase in services, a high (decreasing) percentage of industry and building industry and a decreasing (according to employment) relatively oversized primary sector;

3. The Hungarian part is characterised by a balanced representation of services and primary sector activities and a marked percentage of agricultural activities.

A high concentration of service activities (especially in business, science, education, health-care, culture, tourism etc) is above all the result of the positions of Vienna and Bratislava as the administrative centres of the countries equipped with services of transregional importance.

A considerable proportion of the existing human, economic and science potential is concentrated in the chemical, machinery building and energy industries.

The development of agriculture in the region is, besides the favourable climate, influenced by existing natural conditions. The southern and south-eastern parts of the region in particular have the most fertile soils in Middle Europe and in the north the area of the Moravian valleys is of a similar quality. Apart from the traditional livestock and plant production, there is also widespread vineyard production in the region (Burgenland, the Hungarian part, the foothills of the Small Carpathians, Pavlovski Hills).

The underground water reservoirs from silts of the Danube and the Moravia are of transborder importance (and in fact of importance for all of Middle Europe).

Closer economic connections in the region - penetration of national markets of goods, services, capital and labour - will perhaps engender considerable changes in the distribution of labour and increase economic competition. It can be expected that the new distribution of labour and penetration of the markets will be based on existing comparative advantages of the particular subjects.

Bratislava and Vienna are the potential centres for new development possibilities. Joint efforts to increase business exchanges (Austria's exports to her eastern

neighbouring countries represent 39% at present, whereas in 1988 they were about 6%), and mutually beneficial co-operation will be based particularly on:

- the geographical position of the region - on the border of hitherto fairly isolated social and economic systems; at the crossing of the Danube and north-south routes; at an important potential concentration of goods, labour and information networks within the context of European integration;

- the mutually advantageous exploitation of existing know-how on markets and the economic situation (Bratislava in the east, Vienna in the west);

- the expected trend following the favourable boom in the Austrian sub-region, which might become a driving-force behind economic development in the region as a whole, with a labour market capable of absorbing labour potential from the wider hinterland;

- the comparative advantages of the formally and informally qualified labour force and its growing potential in the Czech Republic, Slovakia and Hungary (at present it is cheap);

- intensification and expansion of air transport facilities (Schwechat-Bratislava), river transport facilities, railway and road transport facilities;

- the exploitation and development of energy networks to the advantage of all parties;

- the development of small- and medium-sized joint enterprises on all national territories and the increase in their competitiveness;

- the highly-developed finance, advisory, consultation and information services in the Vienna area in the Austrian part of the region;

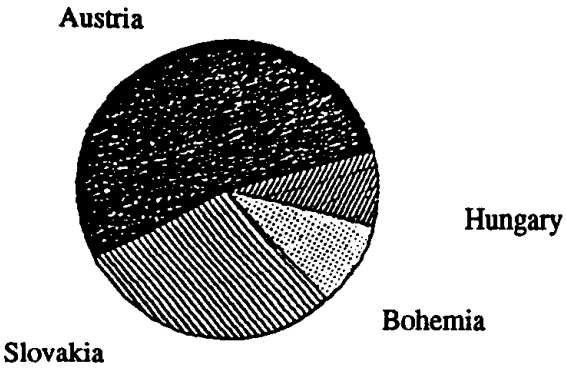
- the global possibilities of more specialisation and closer co-operation in the spheres of industry, agriculture, science, research etc.

Dimension of internal labour potential

1. The region represents at present 2.1 million (without job frequentation).

2. This potential, which could along with other factors form the basis for the creation of one of the largest labour markets and economic megaspaces in Europe if integrated economic relations are intensified, is divided among the countries involved as follows:

Share of the countries in the labour potential of the Vienna-Bratislava-Györ region



The metropolis of Bratislava has conserved its dominant position and constitutes the only source of labour potential for the Czech and Slovak part of the region.

Labour offer in geo-administrative units of the Vienna-Bratislava-Györ region

Area (district, county)	Labour offer In thousands of people	Percentage
Bratislava	225.4	10.7
Bratislava - countryside	71.3	3.4
Dunajská Streda	53.3	2.5
Galanta	67.4	3.3
Trnava	112.4	5.3
Senica	72.0	3.4
Slovakia total	**601.8**	**28.5**
* * *		
Hodonín	79.5	3.8
Břeclav	61.9	2.9
Znojmo	55.1	2.6
Czech total	**196.5**	**9.3**
* * *		
Horn	14.9	0.7
Hollabrun	21.2	1.0
Mistelbach	30.6	1.4
Gänserndorf	36.6	1.7
Vienna	711.6	33.7

Vienna - *Umgebung*	42.3	2.0
Korneuburg	28.2	1.3
Tulln	27.1	1.3
Mödling	46.5	2.2
Baden	52.8	2.5
Wiener Neustadt - *Land*	30.3	1.4
Wiener Neustadt - *Stadt*	16.2	0.8
Mattersburg	14.9	0.7
Eisenstadt	21.2	1.0
Neusiedler am See	21.6	1.0
Bruck	17.6	0.8
Austria total	**1133.8**	**53.6**
* * *		
Györ-Sopron	181.2	8.6
Hungary total	**181.2**	**8.6**
* * *		
Region Vienna-Bratislava-Györ		
Total	**2113.3**	**100.0**

Note: Austria - 1991
Czech Republic, Slovak Republic - 1991
Hungary - 1991

(Estimates of VOOP according to the evolution from 1985-1989)

Total unemployment in the Vienna-Bratislava-Györ region could be estimated at about 15 thousand people at the end of 1991, which over the region as a whole represents the politically acceptable unemployment rate of about 7%. Against the relatively stable work situation of the Austrian part of the region, there is an unstable work situation in the Slovak districts, where the unemployment rate (with the exception of Bratislava) exceeds 10% and in some districts even 15%. The situation in Hungary and in the Czech Republic is favourable.

The different nature of the situation in the various countries concerned is also demonstrated in the differing levels of qualifications of the unemployed population. While Austria has typical structural unemployment focused on the groups with less educational qualifications, in the Czech Republic and Slovakia unemployment is predominant among the more educated.

THEME 2

PLANNING OF COMMUNICATION NETWORKS IN CENTRAL EUROPE IN THE NEW POLITICAL AND ECONOMIC CONTEXT: PROBLEMS OF INFRASTRUCTURE-PLANNING IN CENTRAL EUROPE WITHIN THE EUROPEAN TRANSPORT NETWORKS

CHAIRMAN: Mr Victor RUFFY
Vice-Chairman of the Commission on the Environment,
Regional Planning and Local Authorities of the
Parliamentary Assembly of the Council of Europe,
Morrens

REPORTS PRESENTED BY:

PLANNING OF COMMUNICATION NETWORKS IN CENTRAL EUROPE IN THE NEW POLITICAL AND ECONOMIC CONTEXT: PROBLEMS OF INFRASTRUCTURE-PLANNING IN CENTRAL EUROPE WITHIN THE EUROPEAN TRANSPORT NETWORKS

Accessibility and regional development of European regions and the role of transport systems*

Dr. Horst LUTTER
Federal Research Agency
for Regional Planning and Regional Geography
(BfLR)
Bonn

1. The importance of long-distance transport infrastructure for regional development in Europe

Thesis: The influence of infrastructure projects on business decisions is often overestimated

Transport infrastructure has a mediating effect on an enterprise's location factors. It determines the amount of time necessary to cover the distance between the business itself and its market as well as its suppliers, the catchment area for the work force and the regional delimitations regarding its competitors. The distance itself, however, can hardly be changed through infrastructure and its extension. Therefore, location theories pertaining to the developed economies have long since acknowledged the principle that a good transport infrastructure is necessary, however it is not sufficient in itself to influence an enterprise's locational choice. Exceptions to this rule may be transport businesses, whose sole purpose it is to transport goods or passengers.

Particularly when differentiating between macro- and micro-locational choices, it becomes apparent that transport infrastructure has hardly any influence on macro-locational choices. The globally important transport infrastructure - in particular road infrastructure - is almost ubiquitous[1] in Europe, ie not a criterion to differentiate between locations. Every region on the European NUTS-3 level[2] is integrated into the system of European trunk roads via other qualified roads. Almost every NUTS-3 region is accessible by rail as well. The basic connectivity of regions in Europe by long-distance transit is thus safeguarded as will be shown in the following accessibility analyses. Goods and passengers can be transported from one region to any other region in Europe. Apparently, there are differences in the quality of the regional integration caused by the global situation of the regions and the quality of the local infrastructure. As a rule, however, these local quality differences are not sufficient to determine global locational choices between different regions on a European level.

This is true even for those enterprises whose production process involves a large amount of transport. In the past, the share of transport costs in the overall production costs has decreased more and more. Today, it is at an average of 3-4%.[3] Accordingly, the effects that transport costs have on profits are almost negligible.
Apart from that, the infrastructure's quality and its upgrading have but a marginal influence on the variable transport costs (travel time, mileage etc.), which are in turn smaller than the fixed costs (depreciation, personnel etc.). Our own investigations which were carried out in transport-intensive businesses in Germany which have profited from an upgrading of the trunk road system, yielded the following result: the transport cost savings were so insignificant that they were hardly measurable at all.[4] Other more recent studies regarding major European projects, eg the Channel Tunnel or the Fixed Link across the Great Belt, confirm these findings.[5]

At present, other "soft" location features, eg a favourable location in relation to centres of business and services, a high environmental and recreational quality, the region's general image, as well as, to an increasing degree, the political and social stability of the region, influence the global locational choice.[6] In addition, non-production related business activities such as research, financing and marketing are far more important for economic success than favourable transport conditions. Those factors, however, require fast, far-reaching and diverse opportunities for contact via business-oriented passenger transport. The fact that business centres have emerged near airports and TGV (high-speed train, *train à grande vitesse*) stops and consequently attracted contact-intensive enterprises may already be regarded as proof for this thesis.[7]

Hence, above all contact-intensive, maybe even multinationally located businesses with a high share of qualified employees in research, development and administration can be influenced by new or improved transport facilities in European long-distance transit.

Therefore, future investigations concerning the regional impact of transport infrastructure projects will have to be oriented less towards goods transport and **transport costs** and instead more towards high-speed passenger transport and the achievable **travel time**. This is the area where, in the near future, the greatest progress and the greatest changes may be effected for the individual regions by an extension of the European high-speed transport network.

2. Situation and accessibility of the European regions in high-speed passenger transport

Thesis: The location and accessibility factors of regions on a European level which are important for the region's economy need to be analysed. The topic under investigation should be passenger transport inter-relations, selecting the quickest means of transport and the economically important destinations.

The results of the European accessibility analyses which are shown in the following,[8] deal with high-speed passenger transport on global connections of supra-regional importance. The model is based on the travel time when using the respectively fastest means of transport by road, rail or air. A combination of these means of transport (joint use) is taken into account. Concerning rail and air transit, minimal standards of frequency are taken for granted. The network of the basic network model for road, rail and air travel is so densely interlaced that inter-relations of all NUTS-3 regions in the European Communities and NUTS-2 regions in the EFTA area, as well as in the central/eastern European states can be calculated. The road network has been included to a degree where at least the major city of every region is integrated into the European road network. The few regionally important cities in Europe which are not accessible by rail have been linked to the rail transit network by including the relevant public transport travel time. Regarding air travel, all European airports and connections which were listed with at least one flight per working day in the ABC World Airways Guide have been included. The travel time to the airport as well as the time needed for checking in and out were considered as well.

Based on this network data base, the BfLR's accessibility model EVA (the German acronym stands for "accessibility and supply analyses") makes it possible to calculate situation and accessibility indicators for any region.[9] In doing so, we refer to destinations which are important for regional development, such as economic centres, long-distance transport infrastructure and population.

2.1 Situation of the regions in Europe as a whole

The average travel time from one region to any other region serves as a scale to demonstrate the global European situation of a region. According to this - rather theoretical geographical scale - central and peripheral regions become visible depending on an imaginary centre, the midpoint of the area under investigation. The result is the classical perspective of centre and periphery in a spatial situational assessment.

A comparison of road and rail travel time (see maps 1 and 2) shows a great degree of similarity, particularly in the central and south-eastern European countries. A difference between road and rail becomes apparent only in the west and in the centre of Europe (Frankfurt, Stuttgart, Munich), where due to the excellent motorway network the road travel time is for some regions shorter than the rail travel time.

However, when air traffic is taken into account in the joint use concept, a different image of the global situation of the regions in Europe evolves (see map 3). The fixed isochron structures around an imaginary centre are dissolved. "Central regions" are now those centres and their surroundings which are well integrated into European air traffic. Based on this view, which will be in the foreground in the following, the eastern and southern European countries are in an extremely peripheral situation.

It is not possible to change the basic situation of the regions by an extension of infrastructure. Moreover, this merely situation-based view cannot make any statements regarding the economic development potential of the

regions. Only when locational criteria are viewed together with economic performance factors of the region in question, may it be possible to assess the region's economic development potential.[10]

2.2 Accessibility of the agglomeration centres

The proximity to large agglomeration areas with European impact might be regarded as a scale for the determination of the economic dimension of central and peripheral location. Agglomeration centres and their surroundings are the economically most active areas with a high concentration of enterprises, labour and demand, the best infrastructure and the most diverse and outstanding service supply.[11] It is necessary for contact-intensive businesses to have a good passenger transport system at their disposal in order to share the advantages of the agglomeration if they are not located within the agglomeration area itself. The regions which are within one hour's travel time of the nearest agglomeration centre constitute the extended agglomeration area. Compared to all other regions, they are in a central situation and enable the resident businesses to partake of the benefits of the area's agglomeration. The regions from which it is impossible to reach the nearest agglomeration centre within three hours travel time can be called peripheral. Three hours is assumed to be the travel time limit for a one-day trip. Even if air travel is included for those connections, there are still many regions in Europe which are outside the three hour limit (see map 4).

2.3 Accessibility of population

The population potential accessible from a certain region is an indicator for the amount of possible business contacts. The population density correlates highly with the size of the regional Gross Domestic Product. Therefore it may be assumed that regions with a high population potential are at the same time very attractive for business-related travel. In order to display the accessible economic potential of a given region, the population accessible within three hours is added up (see map 5).The result shows a high degree of correspondence to the accessibility of the agglomeration centres as shown above. The greatest population potentials are found around the densely populated agglomerations in central Europe. Since air traffic is included in the joint use concept, even some economic centres in peripheral European countries are in the highest category because they are well integrated into the air traffic network.

2.4 Accessibility of high-ranking transport infrastructure

As business communication requirements and locational independence grow, the proximity to a high-speed long-distance transport facility (high-speed railway stations and airports) becomes more and more important for certain trades. If the closest airport or high-speed train station can be reached quickly, it is possible to reach all national and international centres of business in a very short time. This means that proximity to the high-speed transport system equals an excellent accessibility of centres all over Europe which are connected by the high-speed network. A large part of commercial contact requirements is most likely concentrated in these centres.

When considering the dispersion and accessibility of the high-speed railway stops today and in the near future according to the UIC's (International Union of Railways) network models, great regional differences become apparent (map 6). With the exception of Luxembourg, Ireland and Greece, every member state will have some high-speed railway stops on its territory in 1995. The closer catchment areas, ie up to one hour around these stops, run into each other wherever there is an accumulation of stops. Their boundaries partly coincide with the boundaries of the agglomeration areas as shown above.

In some countries, favourable locations with regard to high-speed railway stops can even be found in peripheral regions. They might be of significance for the future spatial development, eg south-west of Paris to Bordeaux, south-west of Madrid the regions Badajoz, Seville and Cordoba and Valencia on the Mediterranean coast, the French coast of the Mediterranean and the regions in Central Italy north and south of Rome.

But even in 1995 large areas of the EC will be so far removed from this highly efficient infrastructure (partly more than two hours), that it will be of hardly any use - neither for an improvement of accessibility nor for a regional development. Those regions will be the sparsely populated or insular regions of the EC. Any development including a rail-based means of mass transportation will therefore be hardly economic. Regional as well as supplementary air transport will have to take on new tasks in order to establish efficient high-speed passenger transport in these regions.

In the European Community, the regional dispersion of airports with a minimum of two daily flights for one connection is quite extensive even today. Particularly the islands and the peripheral coastal regions, but also the south-west of France are well integrated into regional air traffic (see map 7). The fairly large number and convenient distribution of airports is even today an important supplement to high-speed railway transport. The only larger areas which do not have as yet such an access to international air traffic within two hours, whether by regional or by supplementary air transport,

are to be found in Spain, Portugal, Greece and in the northern part of the new German *Länder*.

3. Basic concept for a European high-speed passenger transport system

Thesis: A European high-speed system requires a systematic integration of high-speed railway and air traffic plus the national and regional transport networks.

Particularly for the peripheral regions, the greatest accessibility effects and changes in the region's situation can be achieved by extending the European high-speed passenger transport. The spatial distribution of the above-mentioned agglomeration centres will hardly ever change. The locational prerequisites for some regions will however be significantly changed, when the European high-speed transport infrastructure is extended. Therefore, the emphasis of a European transport policy ought to be on planning and on constructing a European high-speed system which will improve the European regions homogeneously or respectively safeguard their connectivity within a framework of minimal standards. This is also the viewpoint of regional planning. This concept requires an even distribution of accesses to the high-speed transport system, a linking of rail and air transport in accordance with both systems and adapted to the spatial structures as well as a good regional connectivity of the accesses by the secondary transport systems.

A very far-reaching long-term plan for the high-speed railway is the network concept V3 for the year 2015, elaborated by the International Union of Railways (UIC).[12] It reaches far into the peripheral regions in Europe. According to this concept, at least 150 business centres in western and central Europe will then have their own high-speed railway station. The improvement brought about by this high-ranking long-distance transport infrastructure for the newly connected regions will be accordingly high (see map 8 in comparison to map 6). The regions in central/eastern Europe are not yet included in the UIC network versions and so are not considered here either.

Above all in Portugal, Spain, the South of France, Ireland, the new German *Länder*, the southern tip of Italy and Greece, this means an improvement for the regions in so far as they will, for example, be able to reach the closest high-speed railway stop within one hour. For any access to the high-speed railway, to be accessible from the surrounding area within one hour's travel on secondary transport networks is about the best connectivity to be possibly achieved. But in spite of the far-reaching UIC network concept for 2015, there will still be some regions needing perhaps more than 90 minutes to travel to the nearest high-speed railway stop. This means that they are practically excluded from this high-quality transport supply. Those regions are to be found in the interior of Portugal, in the south (Granada, Jaen, Cuenca) and the north (Galicia) of Spain, the south of France (Cantal, Aveyron), Sardinia, Corsica and Greece, but also in the north-east of the new German *Länder*, in Great Britain (Grampian, Cornwall) and in Ireland (see map 8).

An expensive means of mass transportation like the high-speed railway cannot open up the sparsely-populated peripheral regions, however. A transport service like this needs to be concentrated - if only for economical reasons - in the most important centres and population potentials. In order to connect regions in a peripheral location and with little demand for high-speed transport, air travel offers a very flexible service. In order to balance the development of European regions in peripheral locations as evenly as possible with regard to high-speed transport, a co-ordinated network concept including high-speed railway and air transport would have to be developed. This network concept would have to consist of a railway network connecting the highest population potentials in Europe with each other while at the same time air transport would have to connect the peripheral regions to the population potentials. In contrast to the UIC network concept for the year 2015, such a plan would mean a much more limited high-speed railway node network. However, it would have to be so efficient (and, above all, fast) that a great part of regional air transport would be made superfluous by these railway connections. New tasks and market potentials on other connections would be given to air transport. As a prerequisite, however, airports and high-speed railway stops - at least the main national airports - have to be linked closely to each other, and their timetables need to be co-ordinated.

A regional planning-oriented network version for such an area-wide integrated high-speed transport system should above all meet the following criteria:

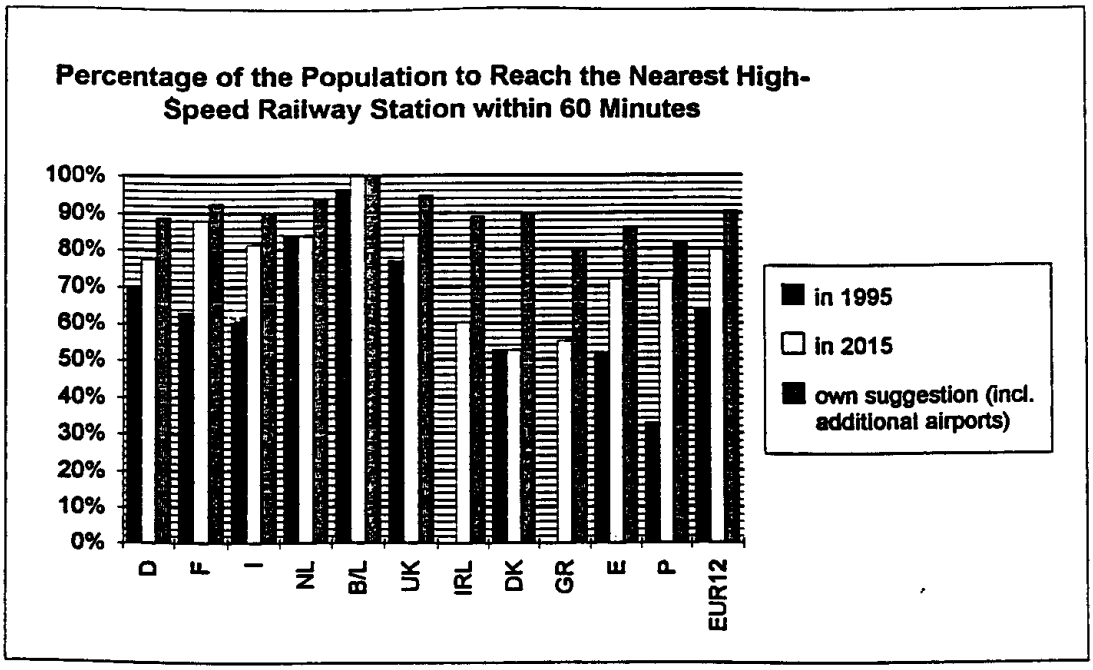
- Direct and frequent rail connections between only the most important economic and cultural centres in Europe - over distances up to 500-600 km they ought to travel fast enough to be a competition for air travel.

- Direct air links covering the greater distances and the less frequent connections between major national airports and the periphery as well as between peripheral regions.

- A 60-90 minute accessibility limit for the integrated rail/air transport accesses from any region via the national road and rail networks.

In order to put this concept into practice, a basic high-speed railway network will be sufficient. It will be composed mainly of the UIC's network version V1-1995 plus some additions in the alpine regions, a better connectivity for Greece and the new German *Länder* and a better connection between France and Spain as well as Germany. To develop the new air links, an extension of 14 regional airports already in existence and 13 airports in the peripheral regions would be necessary[13] in order to connect the peripheral regions to the high-speed transport network, given a corresponding integration into the railway system (see map 10). On the basis of today's secondary transport systems, the travel time necessary to reach the closest access to the high-speed transport system can thus be reduced for almost all regions in western and central Europe to less than two hours (see map 10). From the majority of regions, the closest railway station or airport of the high-speed transport system can be reached within 60 minutes. The percentage of the population in the EC regions which is able to reach the high-speed network within 60 minutes is at its highest and the most balanced in this network version compared to the railway-only version of the UIC (cf. diagram). 90% of the EC's population would be connected to high-speed transport within one hour. The individual values for the EC's member states vary only between 80% and 100%.

The model developed here is designed to present the basic spatial impacts of a combined high-speed rail and air transport system which might possibly be achieved. The comparison to a development by rail only is not quite realistic, however, because regional air transport has its share in the European high-speed transport in every version, present and future. The investigation of this extreme case, however, is supposed to show that a conceptual agreement and a systematic connection of the two high-speed transport systems will yield the greatest benefit. The measures on which the model was based and which were included are not totally fictitious, but neither were they separately tested for their rationality and feasibility. However, this process shows how to approach a concept for a global European high-speed system from the theoretical viewpoint in order to maximise one aim - here the balanced improvement of European regions. This concept can be compared to other plans and its feasibility can be tested on-site.



Percentage of the Population to Reach the Nearest High-Speed Railway Station within 60 Minutes			
	in 1995	in 2015	own suggestion (incl. additional airports)
D	69%	77%	89%
F	63%	88%	93%
I	62%	81%	90%
NL	84%	84%	94%
B/L	96%	100%	100%
UK	77%	84%	95%
IRL	0%	60%	89%
DK	53%	53%	90%
GR	0%	55%	80%
E	51%	72%	86%
P	33%	72%	82%
EUR12	64%	80%	90%

4. Extending the European high-speed transport *system for passenger transport - regional* development opportunities and risks

Thesis: To promote high-speed passenger transport throughout Europe is more important for the economic and social unification process of European countries and regions than a further improvement of goods transport. Whether the extension of the high-speed transport system produces developmental impacts for the regional economy depends on the spatial situation and the economic starting point of the regions.

High-speed passenger transport connections are gaining in importance for future development in Europe. Not only business contacts on a commercial or administrative level but increasingly also individual recreational travel is concerned here. An understanding of other peoples, getting to know and to appreciate regional particularities: all this depends on a flow of people. It is an important prerequisite in order to open up new development opportunities for peripheral regions which are not among the central growth regions. If transport policy is mainly geared towards long-distance goods transport, it is not helping regional policy in any way. On the contrary, there is a danger that regions with a locational disadvantage and a small variety of products will have to intrude more and more into their competitors' preserves in regions with a higher economic standard. A high-speed transport system geared towards rapid passenger transport on the other hand offers a better basis to create impulses for spatial development on a European level. From the viewpoints of transport structure and ecology, the only sensible way to implement high-speed long-distance passenger transport is through an integrated rail/air transit system. It needs to be attractive enough to make passengers switch from air transport, or from transport by road, to an integrated rail/air transit system. Where greater distances are concerned, passenger transport by road will always be inferior to the combined high-speed transport system and will never be able to provide enough capacity on the main connections without an intolerable use of natural resources. The same can be said for air transport over shorter distances (approximately less than 600 km).

In the case of the creation of an all-European integrated high-speed transport system - as shown in 3 - which connects all regions within reasonable time limits, another question is posed. How will regional development impacts be distributed regionally? Does such a system only serve to improve the competition among the directly connected greater centres in Europe, as is often supposed,[14] thus handicapping the smaller ones? Or will it on the contrary be a chance for a greater *decentralisation of spatial development?*

To predict these developments accurately is very difficult, if not impossible. One has to take into account, as mentioned above, that the development of a regional economy is above all dependent on other general economic and situation-related factors, not on transport conditions. Other factors concerned are the specific starting positions of the regions in the economic structure and in their economic performance, the global situation and particularly the "soft" location factors. The following simplified tendencies might be said to apply:

- Regions in a favourable central situation with a high economic performance as a rule develop a momentum which, seen from the viewpoint of regional planning, seems to call for protective measures (safeguarding of open spaces, improvement of the environment, protection against uncontrolled suburbanisation) rather than for development stimuli. Measures aimed at improving the transport infrastructure can hardly cause any further improvement of the quality of connections because it is at a very high level already. Extending the high-speed transport system will not yield any measurable travel time savings because the agglomeration centres are already very well connected. Any changes in these regions which are due to an extension of infrastructure are thus highly unlikely.

Exceptions are regions in central areas which, after an extension of the high-speed network, find themselves at the hub of transit axes outside of agglomeration areas (eg Lille and Grenoble). They gain a better accessibility in general. All their other location factors are positive as well, so that they are confronted with a totally new development prospect, suddenly being an alternative to the already heavily burdened agglomeration areas.

- In economically weak and peripheral regions, an integration into the high-speed transport system may cause a greater improvement of accessibility. However, it is highly unlikely that the improvement of only one location factor will be followed by a positive economic development.

Here the exceptions are the peripheral regions possessing attractive recreational and cultural areas. The situation in areas far from motorised mass-tourism routes in particular might be greatly improved by a better integration into high-speed passenger transport. Another exception are the still peripheral regions in former East Germany, whose rail infrastructure had been neglected. A specialised aid programme, which is unique in Europe, has been launched to support them on all levels.

Generally, however, in order to support a decentralised and individual development in this type of region, programmes geared towards strengthening endogenous development potentials are much better than measures which increase the supra-regional dependencies.[15]

- The regions which stand to profit the most from their integration into the European high-speed transport network are the peripheral regions which, even today, have a relatively high economic performance. This means that good accessibility is supported by favourable prerequisites for an economic development capable of sustaining itself. Regarding the EC area, those are regions in south-west France, northern Spain, northern and central Italy, the southern new German *Länder* and East Bavaria, Denmark and some coastal regions in Great Britain and in Ireland. The areas close to agglomerations in central/eastern Europe will soon be among those regions, too.

Their economic basis is principally sound and most of them have a potential of some "soft" location factors, whose importance is constantly growing. Therefore their prerequisites for a regional implementation of the advantages supplied by an integration into the European high-speed transport network are excellent. As soon as their proximity to the agglomeration centres is granted by high-speed transit, they will immediately become very attractive for contact-intensive trades with a high share of research and development. Hence, a corresponding development impulse might act as a strong multiplier.

Final statement

One needs to be careful not to overestimate the regional development impacts of a European high-speed transport system for long-distance passenger transport. In my opinion, one-sided centralising effects of a high-speed transport system oriented towards the great agglomeration centres are not to be expected. On the contrary, a unified high-speed transport network all over Europe which integrates rail and air transport and is linked to the national transport networks is able to support a decentralised development on a high level if the overall economic and regional framework is favourable.

Notes and references

* I would like to thank Barbara Schmitz for translating the text and Thomas Pütz, both from the BfLR, Bonn, for preparing the maps.

1 Lutter, H.: Raumwirksamkeit von Fernstraßen, in: Forschungen zur Raumentwicklung, Bd. 8., 1980

2 NUTS = Nomenclature des Unités Territoriales Statistiques

3 Vickerman, R.W.: Transport Infrastructure in the European Community, New Developments, Regional Implications and Evaluation, in: European research in regional science 1: Infrastructure and Regional Development, Pion London 1991, S.46

4 Lutter, H.: Raumwirksamkeit von Fernstraßen, a.a.O., S. 139 ff.

Burkhalter, R.; Steiner, R.; Kästli, B.; Langer, D.: Siedlung und Verkehr - Arbeitsteilige Produktionsprozesse, Mobilität, Ausbau der Verkehrsinfrastruktur und Bodenverbrauch; Bericht 49 des Nationalen Forschungsprogramms "Nutzung des Bodens in der Schweiz", Liebefeld-Bon 1990

5 Vickerman, R.W.: Other Regions' Infrastructure in a Region's Development, in: European research in regional science 1: Infrastructure and Regional Development, Pion London 1991, S. 72

Illeris, S.; Jakobsen, L.: The Effects of the Fixed Link Across the Great Belt, in: European research in regional science 1: Infrastructure and Regional Development, Pion London 1991, S.84

6 Gatzweiler, H.P.; Irmen, E.; Janich, H.: Regionale Infrastrukturausstattung, in: Forschungen zur Raumentwicklung, Band 20, Bonn 1991

Stenzenberger, R.: Tagungsbericht zur Wirtschaftsförderung: Standortfaktoren bei der Industrieansiedlung - Qualitative Faktoren dominieren zusehends, in: STANDORT-Zeitschrift für Angewandte Geographie, Heft 1, 1992, s. 31-34

[7] Van den Berg, L.; van der Meer, J.: Regional Airports and Urban Economic Development - Experiences of five European Cities, European Institute for Comparative Urban Research/Rotterdam Transport Centre, Erasmus University Rotterdam, July 1991

[8] Lutter, H.; Pütz, T.; Spangenberg, M.: Acessibility and Peripherality of Community Regions: The Role of Road, Long-distance Railway and Airport Networks, Bericht für die Commission of the European Communities, GD XVI, Bundesforschungsanstalt für Landeskunde und Raumordnung, Bonn 1992

[9] It is difficult to compare the results of the individual countries because the sizes of the regions vary - sometimes considerably. Particularly in Germany and in the Benelux countries, the regions are a lot smaller than elsewhere. However, the basic statements regarding the peripheral or central situation of the regions are not distorted.

[10] Empirica: The Spatial Consequences of the Integration of the New German *Länder* into the Community and the Impact of the Development of the Countries of Central and Eastern Europe on the Community Territory, Bericht für die Commission of the European Communities, GD XVI, Bonn 1993

[11] The selection of the 41 agglomeration centres which constituted the basis for the calculations was based upon: Brunet, R. et al.: Les villes européennes - Rapport pour la Délégation à l'aménagement du Territoire et à l'Action Régionale (DATAR), Groupement d'Intérêt Public RECLUS, Montpellier, Paris 1989

and

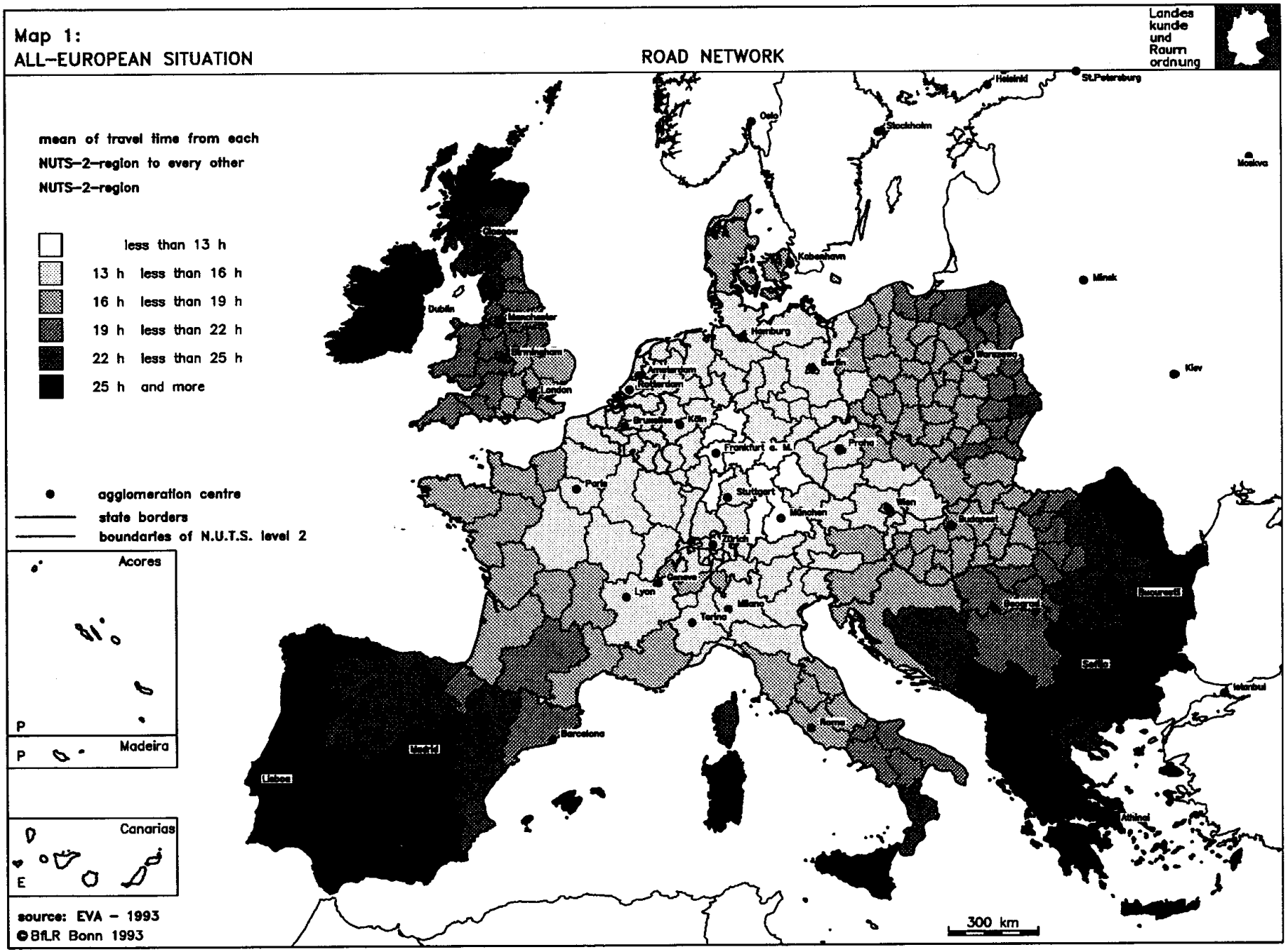
Zumkeller, D.; Herry, M.; Steinbach, J.: Raumordnung und europäische Hochgeschwindigkeitsbahn, Bericht für den Bundesminister für Raumordnung, Bauwesen und Städtebau, INOVAPLAN München, 1992

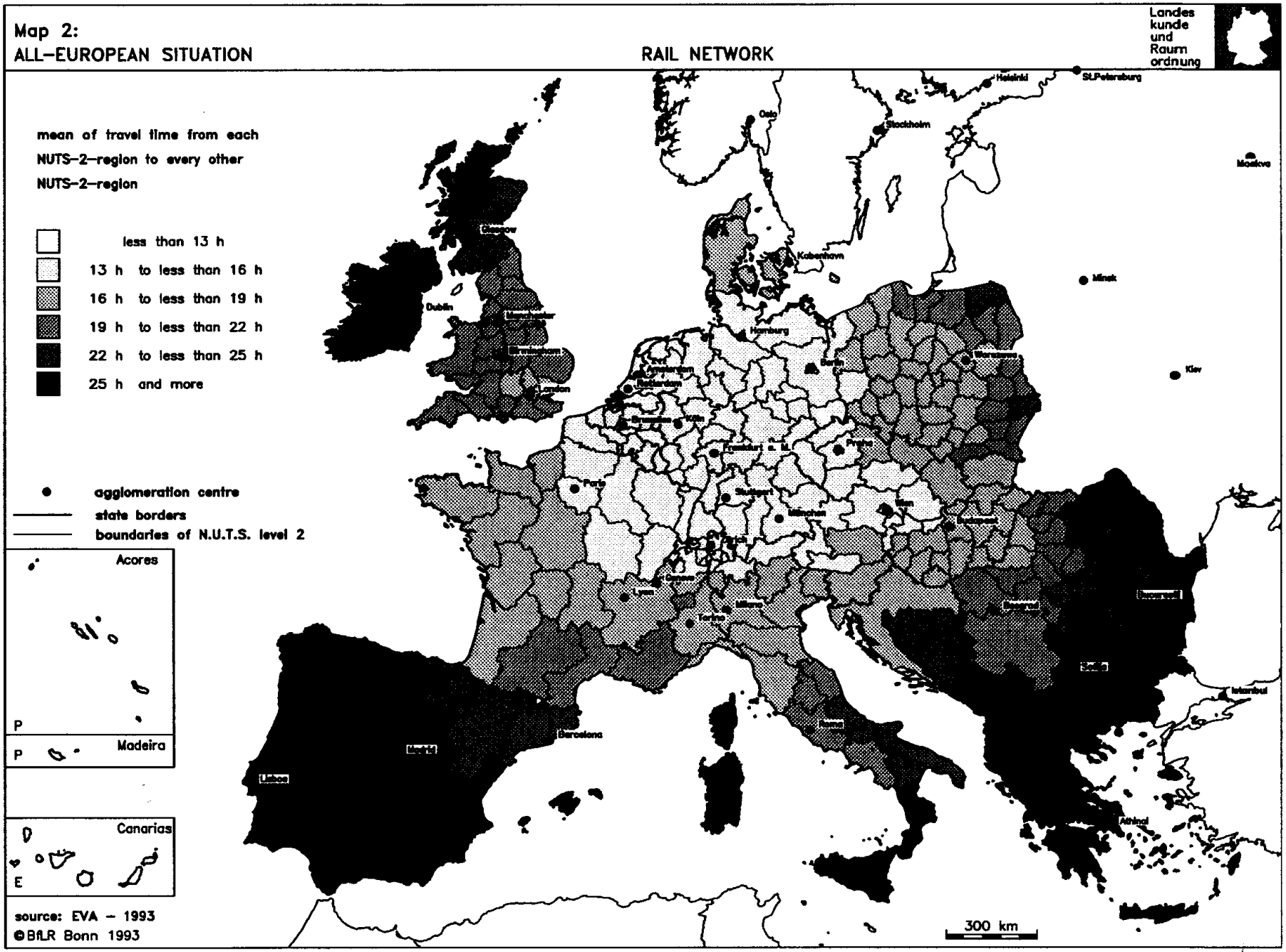
[12] Gemeinschaft der europäischen Eisenbahnen (UIC) (Hrsg.): Vorschlag für ein europäisches Hochgeschwindigkeitsnetz, Brüssel Januar 1989 - Version V1 - 1995, S. 15, Abb. 8 - Version V2 - 2015, S. 16, Abb. 10

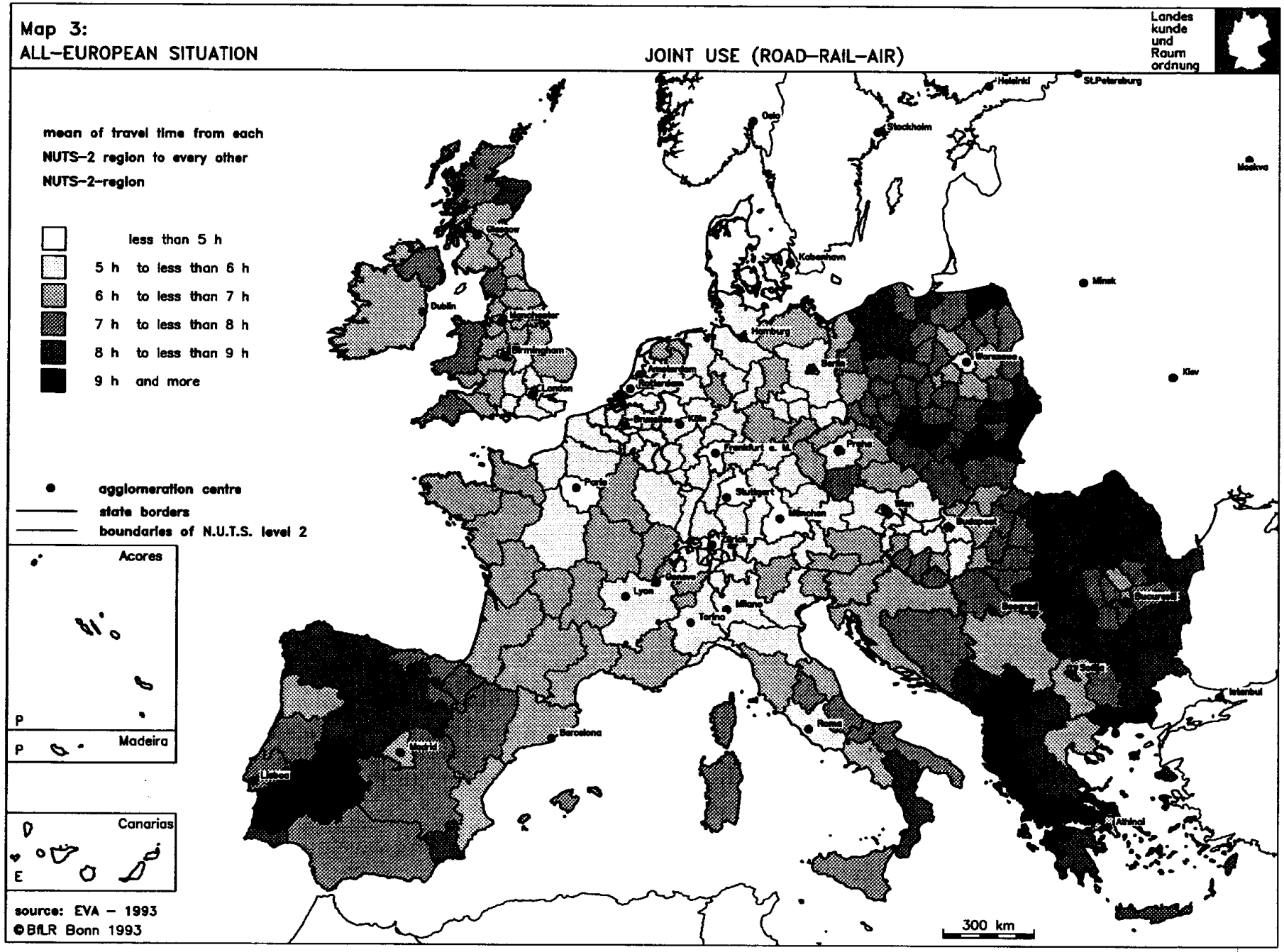
[13] Doganis, R.; Dennis, N. et al.: Air Transport Infrastructure Needs in the Lagging Regions 1994-2000, Report for the Commission of the European Communities, 1991

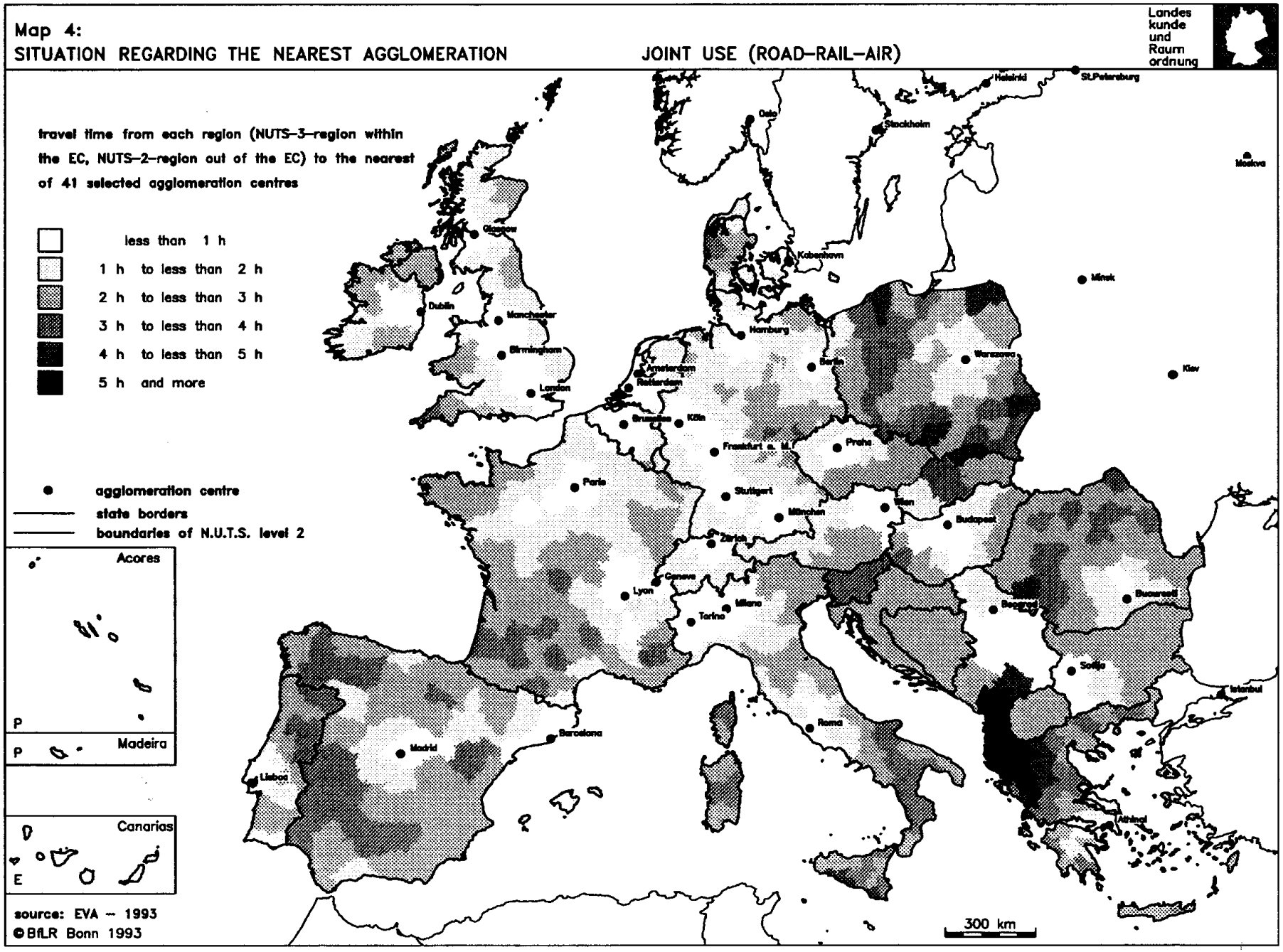
[14] Steinbach, J.; Zumkeller, D.: Integrierte Planung von Hochgeschwindigkeitsverkehr in Europa, in: Informationen zur Raumentwicklung, Heft 4, Bundesforschungsanstalt für Landeskunde und Raumordnung, Bonn 1992, S. 265 ff.

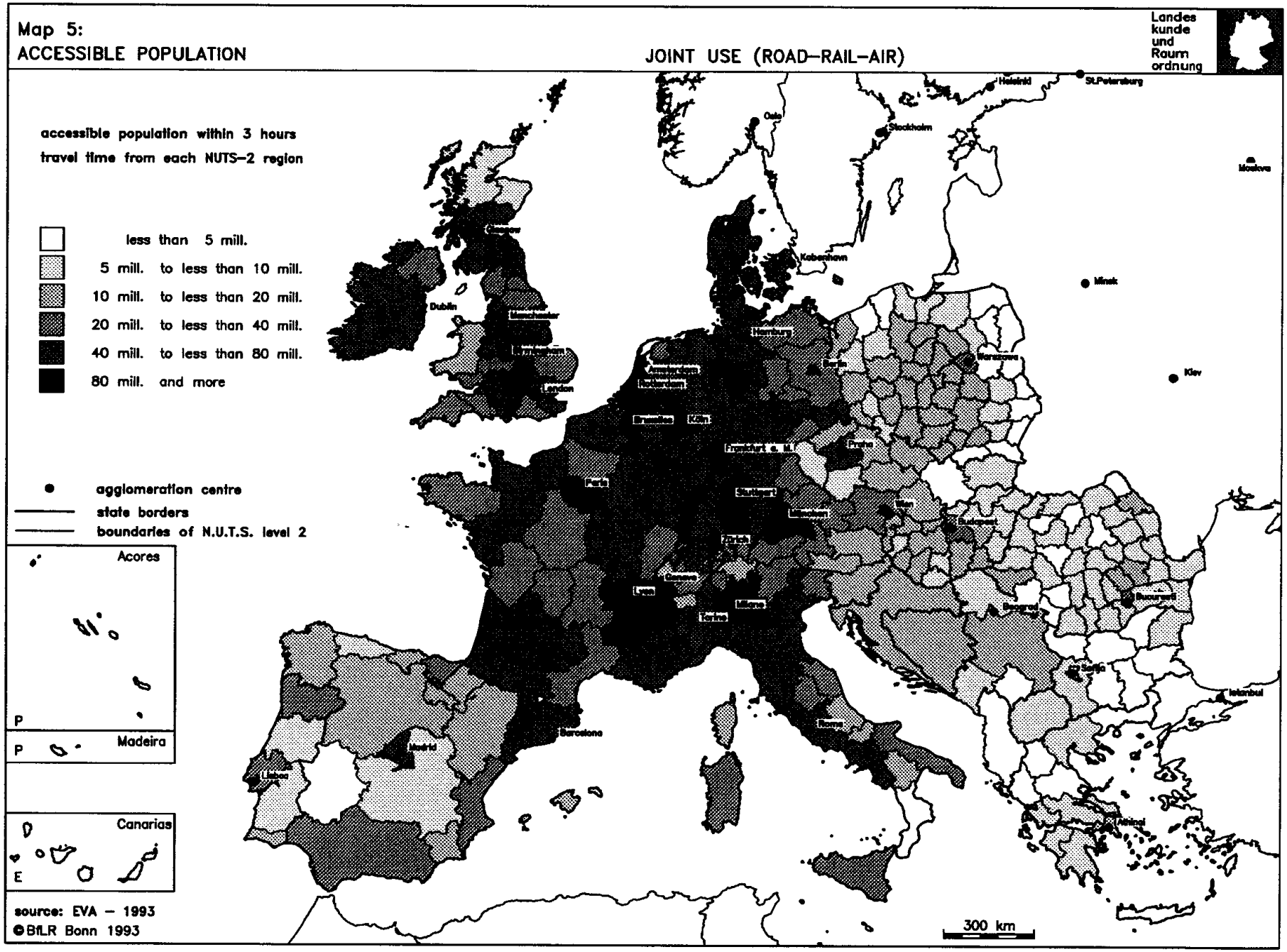
[15] Lutter, H. (Hrsg.): Dezentralität als Aspekt räumlicher Versorgung, in: Informationen zur Raumentwicklung - Themenheft, Bundesforschungsanstalt für Landeskunde und Raumordnung, Heft 4/5, Bonn 1987.


Map 1:
ALL-EUROPEAN SITUATION
ROAD NETWORK
Landes kunde und Raum ordnung
mean of travel time from each NUTS-2-region to every other NUTS-2-region
less than 13 h
13 h less than 16 h
16 h less than 19 h
19 h less than 22 h
22 h less than 25 h
25 h and more
agglomeration centre
state borders
boundaries of N.U.T.S. level 2
Acores
P
Madeira
P
Canarias
E
source: EVA - 1993
©BfLR Bonn 1993
300 km
Helsinki
St.Petersburg
Oslo
Stockholm
Moskva
København
Minsk
Dublin
Hamburg
Berlin
Amsterdam
Rotterdam
London
Birmingham
Manchester
Bruxelles
Köln
Frankfurt a. M.
Praha
Kiev
Stuttgart
München
Wien
Budapest
Zürich
Lyon
Genève
Milano
Torino
Roma
Barcelona
Lisboa
Istanbul
Athinai


Map 2:
ALL-EUROPEAN SITUATION
RAIL NETWORK
Landes kunde und Raum ordnung
mean of travel time from each NUTS-2-region to every other NUTS-2-region
less than 13 h
13 h to less than 16 h
16 h to less than 19 h
19 h to less than 22 h
22 h to less than 25 h
25 h and more
agglomeration centre
state borders
boundaries of N.U.T.S. level 2
Acores
P
Madeira
P
Canarias
E
source: EVA - 1993
©BfLR Bonn 1993
300 km
Helsinki
St.Petersburg
Oslo
Stockholm
Moskva
Kobenhavn
Minsk
Dublin
Hamburg
Kiev
London
Amsterdam
Rotterdam
Bruxelles
Wien
Frankfurt a. M.
Praha
Paris
Porto
Stuttgart
Milano
Lyon
Torino
Barcelona
Roma
Istanbul
Lisboa
Athinai


Map 3:
ALL-EUROPEAN SITUATION
JOINT USE (ROAD-RAIL-AIR)
Landes kunde und Raum ordnung
mean of travel time from each NUTS-2 region to every other NUTS-2-region
less than 5 h
5 h to less than 6 h
6 h to less than 7 h
7 h to less than 8 h
8 h to less than 9 h
9 h and more
agglomeration centre
state borders
boundaries of N.U.T.S. level 2
Acores
Madeira
Canarias
source: EVA – 1993
©BfLR Bonn 1993
300 km
Helsinki
St.Petersburg
Oslo
Stockholm
Moskva
Kobenhavn
Minsk
Dublin
Manchester
Birmingham
London
Hamburg
Berlin
Warszawa
Kiev
Amsterdam
Rotterdam
Bruxelles
Koln
Frankfurt a. M.
Praha
Paris
Stuttgart
Munchen
Wien
Budapest
Zurich
Geneve
Lyon
Milano
Torino
Bucuresti
Beograd
Roma
Istanbul
Barcelona
Madrid
Lisboa
Athinai

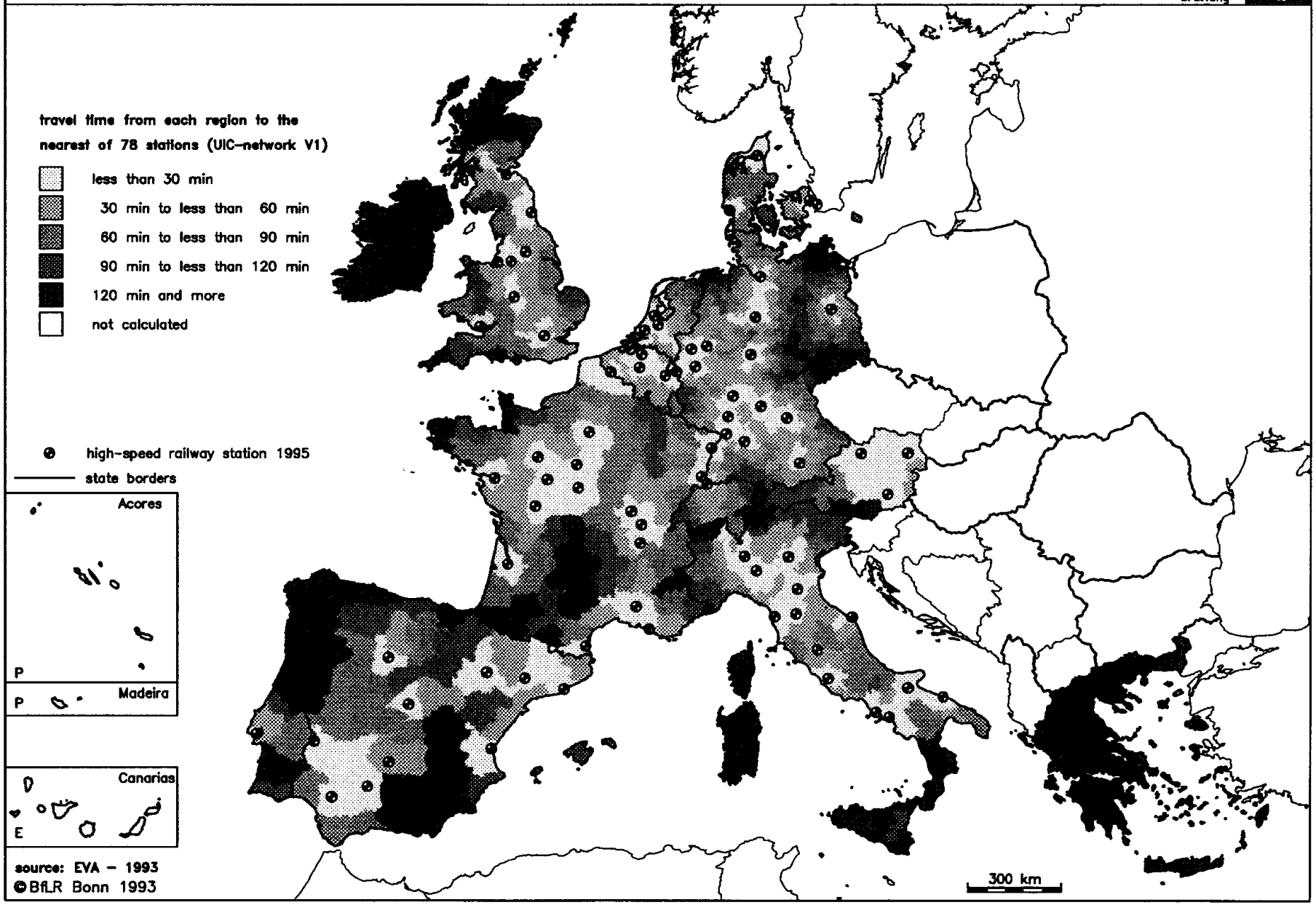

Map 4:
SITUATION REGARDING THE NEAREST AGGLOMERATION
JOINT USE (ROAD–RAIL–AIR)
Landes kunde und Raum ordnung
travel time from each region (NUTS–3–region within the EC, NUTS–2–region out of the EC) to the nearest of 41 selected agglomeration centres
less than 1 h
1 h to less than 2 h
2 h to less than 3 h
3 h to less than 4 h
4 h to less than 5 h
5 h and more
agglomeration centre
state borders
boundaries of N.U.T.S. level 2
Acores
P
Madeira
P
Canarias
E
source: EVA – 1993
©BfLR Bonn 1993
Helsinki
St.Petersburg
Oslo
Stockholm
Moskva
Glasgow
København
Minsk
Dublin
Manchester
Hamburg
Birmingham
Amsterdam
Rotterdam
Berlin
Warszawa
Kiev
London
Bruxelles
Köln
Frankfurt a. M.
Praha
Paris
Stuttgart
München
Wien
Budapest
Zürich
Genève
Lyon
Milano
Torino
Beograd
Bucuresti
Sofia
Istanbul
Madrid
Barcelona
Roma
Lisboa
Athinai
300 km


Map 5:
ACCESSIBLE POPULATION
JOINT USE (ROAD–RAIL–AIR)
Landes kunde und Raum ordnung
accessible population within 3 hours travel time from each NUTS–2 region
less than 5 mill.
5 mill. to less than 10 mill.
10 mill. to less than 20 mill.
20 mill. to less than 40 mill.
40 mill. to less than 80 mill.
80 mill. and more
agglomeration centre
state borders
boundaries of N.U.T.S. level 2
Acores
P
Madeira
P
Canarias
E
source: EVA – 1993
©BfLR Bonn 1993
300 km
Helsinki
St.Petersburg
Oslo
Stockholm
Moskva
København
Minsk
Dublin
Manchester
London
Hamburg
Berlin
Warszawa
Kiev
Amsterdam
Rotterdam
Bruxelles
Köln
Frankfurt a. M.
Praha
Paris
Stuttgart
München
Wien
Budapest
Zürich
Genève
Lyon
Milano
Torino
Beograd
Sarajevo
Barcelona
Madrid
Lisboa
Roma
Istanbul
Athinai

Map 6:

SITUATION REGARDING THE NEAREST HIGH-SPEED RAILWAY STATION 1995 JOINT USE (ROAD-RAIL-AIR)

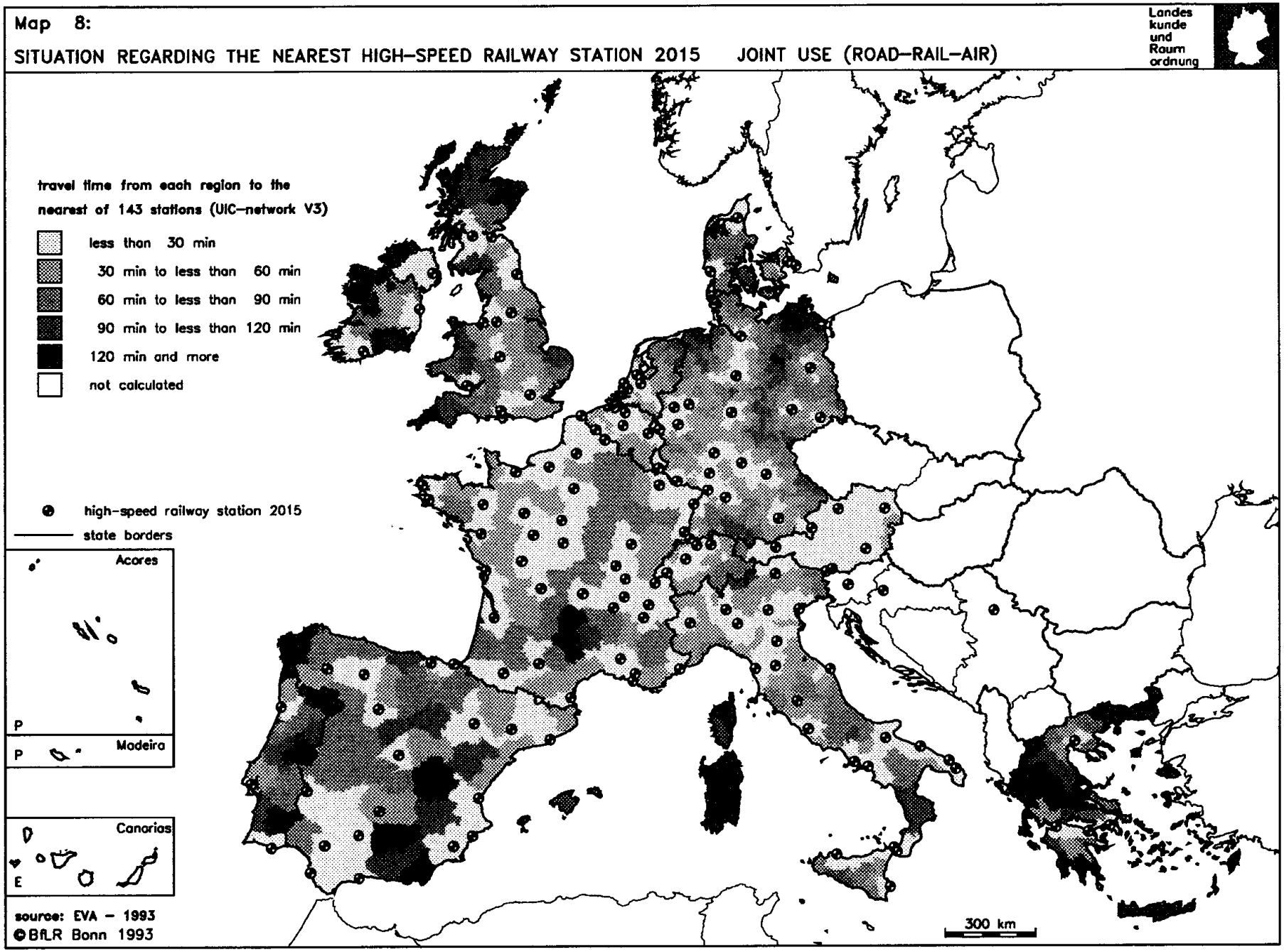
Landes kunde und Raum ordnung



Map 8:

SITUATION REGARDING THE NEAREST HIGH-SPEED RAILWAY STATION 2015 JOINT USE (ROAD-RAIL-AIR)

Landes kunde und Raum ordnung

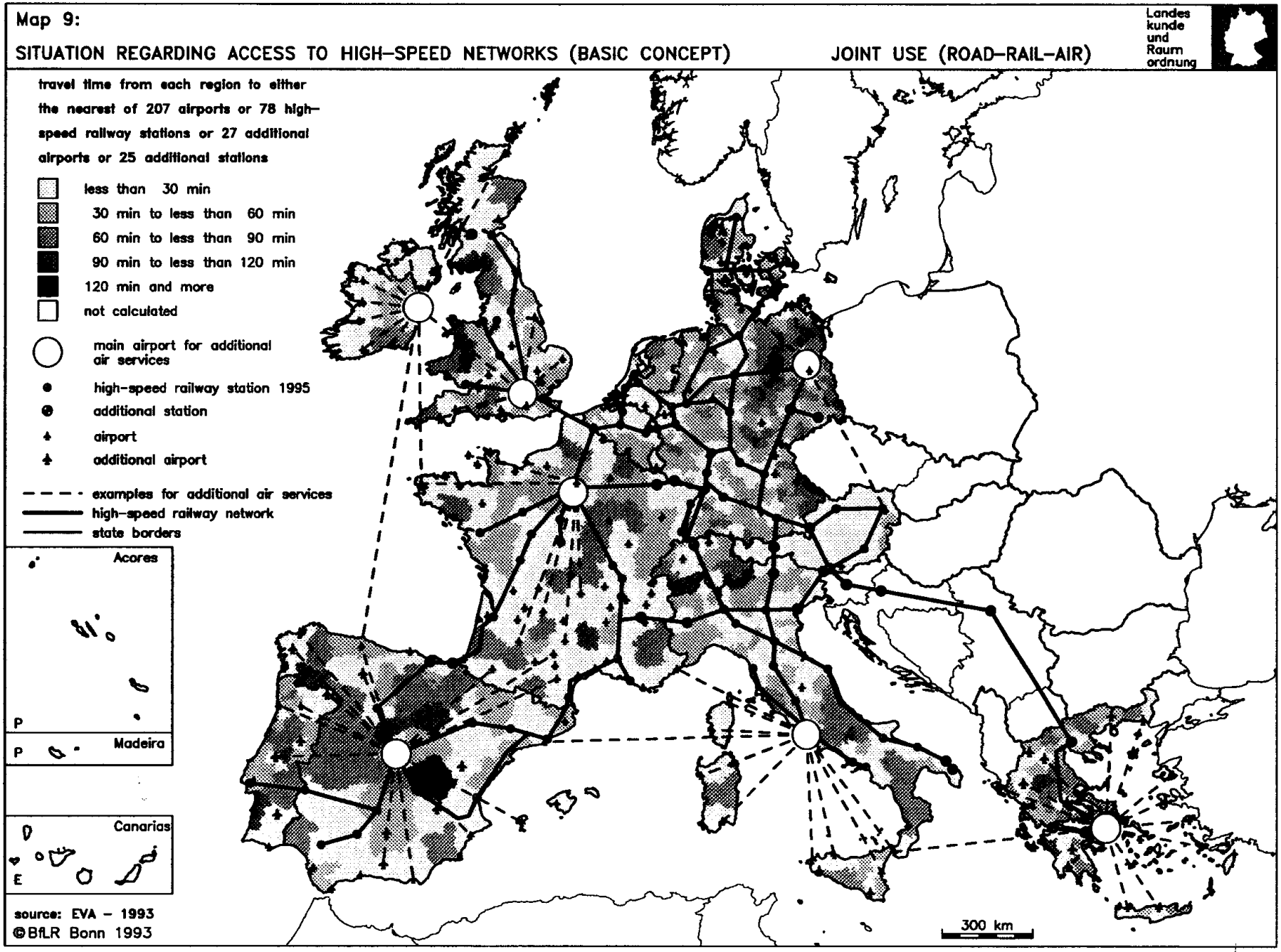


source: EVA - 1993

Map 9:

SITUATION REGARDING ACCESS TO HIGH-SPEED NETWORKS (BASIC CONCEPT) JOINT USE (ROAD-RAIL-AIR)

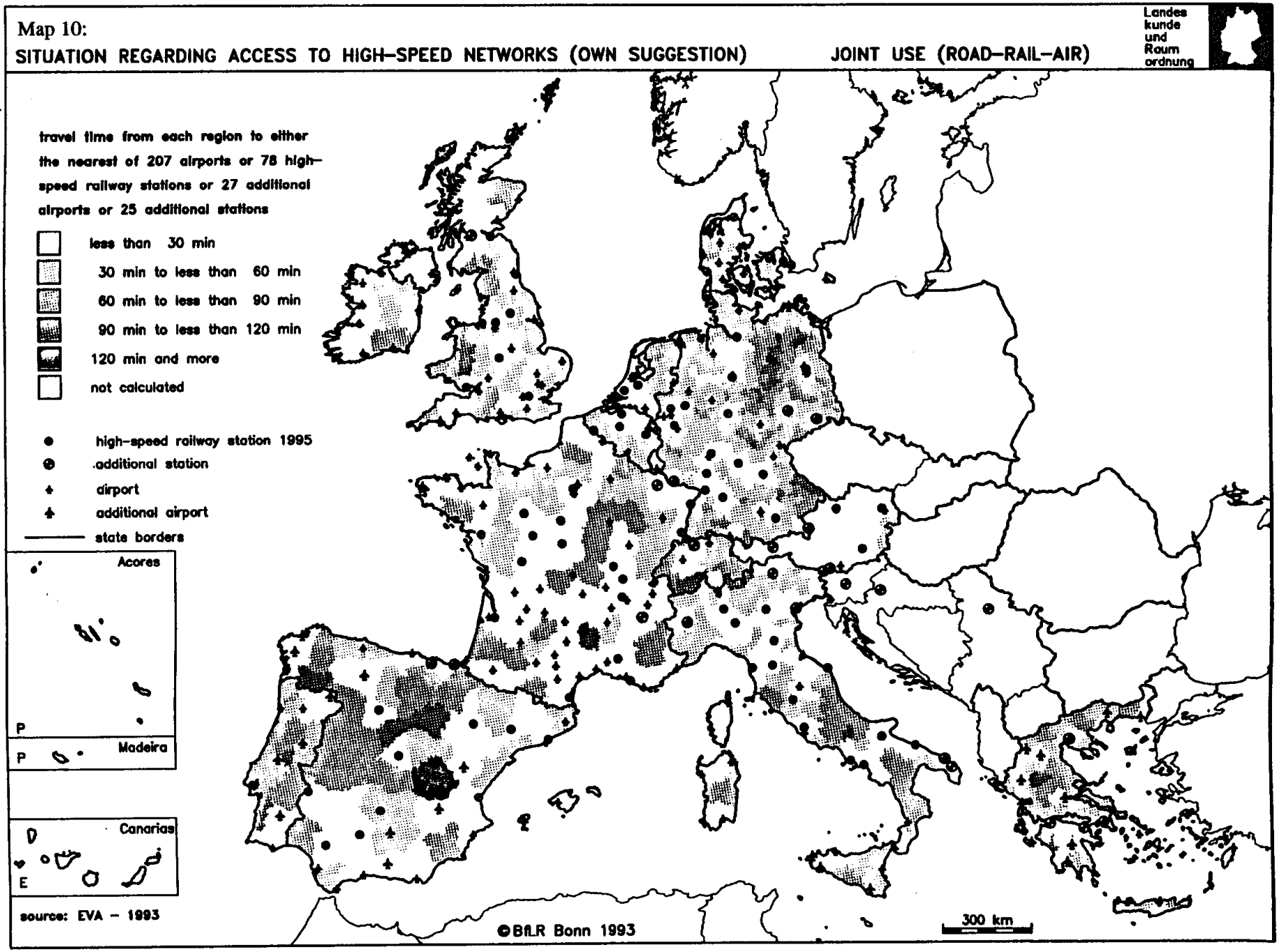
Landes kunde und Raum ordnung



Map 10:

SITUATION REGARDING ACCESS TO HIGH-SPEED NETWORKS (OWN SUGGESTION) JOINT USE (ROAD-RAIL-AIR)

Landes kunde und Raum ordnung



PLANNING OF COMMUNICATION NETWORKS IN CENTRAL EUROPE IN THE NEW POLITICAL AND ECONOMIC CONTEXT: PROBLEMS OF INFRASTRUCTURE-PLANNING IN CENTRAL EUROPE WITHIN THE EUROPEAN TRANSPORT NETWORKS

Development of European transport infrastructure systems: problems and possible solutions

Mr Günther HANREICH
Director General
Ministry of Public Economy and Transport
Vienna

The co-ordinated planning of transport infrastructures is only part of the solution to future transport problems. Not only the infrastructure, but also the political conditions for the use of this infrastructure are decisive for the conception of a transport system. If such conditions are not defined, this leads to bad developments, which can only be corrected by great political and financial efforts. Therefore the planning of the networks has to go hand in hand with the definition of the conditions for their use.

1. Traffic forecasts

All traffic forecasts, on the assumption that current transport policies will continue, show a clear increase of road freight and passenger transport. This leads to increasing congestion of road and, also to a certain extent, rail infrastructures, as well as to negative effects on the environment, which can only be partly counterbalanced by technical measures.

1.1 Road freight transport

A forecast of the European Conference of Ministers of Transport (ECMT) shows that road freight transport will increase by 51% between 1991 and 2010. The ECMT study draws the conclusion that if transport policies are not changed at a European-wide level, rail transport will stagnate in spite of increasing demand. Road freight transport would increase by 70%. Some European states, however, have already changed their transport policies and rail transport is now considered to be very important.

Growth rates in road freight transport between the east and the west will be especially high: according to a study undertaken by Prognos AG in Basel, road freight transport between the former Comecon states and their neighbours in the west will jump from 60 million tonnes in 1988 to 500 million tonnes in 2010. This means that traffic flows will increase eightfold.

An Austrian study on road freight transport undertaken by Rosinak and Snizek shows a less dramatic development in international transport (without pipelines). However, the numbers are still impressive: between 1987 and 2010 bilateral transport will increase by 70% and transit traffic through Austria by 170%.

(in million tonnes)	**1986**	**2010**	**Growth rate in %**
Bilateral	50.8	86.9	+ 71.1
Transit	30.1	80.6	+ 167.8

This forecast is based on the assumption that the former Comecon states participate in the economic integration of Europe.

The latest data show, however, that the growth rates are higher than expected: in 1991 the transport volume created by exports and imports had already reached 61 million tonnes (+20%), and 33 million tonnes (+10%) of goods were carried through Austria in transit (pipelines not included).

1.2 Passenger transport

During the first few years following the opening-up of borders with the former eastern European countries, passenger transport along these routes has steadily increased. While only about 130 million incoming foreigners were counted at Austrian borders in 1985, 209 million were counted in 1992. Even higher growth rates can be expected for the future. According to a study carried out by the EC Commission, transport will increase by 74% between 1990 and 2010, the number of private cars registered in the present EC member countries by 45% and the driving performance by 25%.

Domestic traffic in Austria will also increase. According to a study carried out for the transport concept for Lower Austria, the driving performance of Austrian private cars will increase by 30% between 1990 and 2011. In several regions - especially in the surrounding areas of big agglomerations - the increase expected for the driving performance of cars is even as high as 45%.

According to a forecast for Lower Austria, the traffic performance (passenger-kilometres) in public transport might decrease by 2%. Similar unfavourable results for public transport, cycle-paths and pedestrian zones are to be expected for the other federal states. I would like to mention in this context the study "Energy Potentials in Transport", ordered by the Ministry of Public Economy and Transport and the Ministry of the Environment.

2. The central European states need a common, future-orientated transport policy in order to solve their transport problems

Transport problems of a European dimension concern all central European states. This is also true for the problems related to transit traffic through the alpine countries.

The strong negative effects of transit traffic through Austria and its neighbours in the centre of Europe are due to the geographical situation of these countries. North-south and east-west traffic flows have to pass through the countries situated in the centre of Europe. The negative effects of this stem from the fact that these traffic flows cross each other in central Europe. In order to protect the people and the environment, the countries concerned have to take measures to solve the problems related to transit traffic.

Switzerland, for example, has for decades followed a restrictive policy in the field of road freight transport (maximum authorised weight of 28 tonnes, general night ban, strict controls). This is why 25% of the north-south transit traffic of goods on Austrian roads is detour traffic avoiding Swiss routes. Another 18% of the entire transit traffic across the Brenner could also travel via Switzerland without any loss of time.

2.1 Improvement of rail infrastructure as a solution for transit problems

Austria and Switzerland believe that the problems of transit can be solved by improving the rail infrastructure. Switzerland has almost completed the improvement of the Lötschberg-Simplon section.

In the framework of the "Neue Eisenbahn-Alpentransversale" project, two tunnels, one under the Gotthard and one under the Lötschberg, will be constructed.

In Austria too, several projects aimed at shifting road freight transport to rail are being carried out. Medium-term investments of about 10 billion Austrian Schillings are assigned for this purpose. These projects include:

- construction of the Innsbruck loop line on the Inntal-Brenner section;
- reconstruction of the Tauern section;
- reconstruction of the Pyhrn-Schober section, selective improvements on the section between Linz and Selzthal, reconstruction of the Traun-Marchtrenk curve (relief for Linz) on the Pyhrn section.

The following projects are becoming more and more important in view of the expected economic integration of eastern Europe:

- the tunnel of Lainz in Vienna as a connection between the eastern, southern and western railways;
- reconstruction of the western railway between St Pölten and Attnang-Puchheim and the new line between Vienna and St Pölten (qualitative improvements as well as track doubling in order to guarantee sufficient capacities for future demands);
- tunnel under the Semmering in order to facilitate rail transport between economic centres in eastern and southern Europe.

For the so-called "Süd-Ost-Spange", a high-capacity railway from Vienna across the Burgenland to Graz and through a tunnel under the Koralpe to the centre of Carinthia, an extensive feasibility study has already been worked out. For the time being, further planning is under way. Forecasts for an economically-integrated central Europe show that the Semmering section with a tunnel would be congested by 2025. Forecasts for the "Süd-Ost-Spange" show a volume of 11.5 million tonnes (4.6 billions of tonne-kilometres) for road freight transport, and a volume of 4.6 million passenger-kilometres for passenger transport. If one compares these figures with those reported by the Austrian Federal Railways (ÖBB) for 1991 (9.2 billion passenger-

kilometres), one can assess the importance of this new railway connection.

2.2 Inland waterway transport on the Danube

The Ministry of Public Economy and Transport clearly stresses the importance of an intensified use of the Danube in transport operations in the "Austrian general traffic concept" (*Österreichisches Gesamtverkehrskonzept*), as well as in the "Inland waterway memorandum" (*Binnenschiffahrtsmemorandum*).

The Danube presents the following advantages:

- at present, there are many available capacities on the Danube;
- the negative effects of inland waterway transport are relatively low;
- there is an existing transport system, therefore additional surfaces are not required.

The importance of the Danube as an east-west traffic axis will certainly increase with the Rhein-Main canal. The transport volume expected for the new canal will reach 4-10 million tonnes per year. Austria will intensify its efforts to include inland waterway transport on the Danube in the chain of combined transport operations.

Therefore, adequate locations have to be found for inland waterway-orientated road freight centres and rail, road and inland waterways interfaces must be quickly created.

One important step in this direction will be the foundation of a so-called "Watercombi". This society will be able to make attractive offers, including inland waterways, to hauliers.

A major problem of inland waterways is their reliability during periods of low water level. To ensure a minimum water depth of 2.5 metres downstream of Vienna, hydraulic engineering measures are required, obviously taking into account ecological aspects.

At the moment, experts in several disciplines are examining the compatibility of solutions in the field of hydraulic engineering with the national park "Danube-March-Auen". A political decision is expected by the year 1994.

2.3 Road transport

The remaining long-distance road traffic - which will still represent a considerable volume despite all efforts to shift traffic from road to rail - must be kept limited to a volume suitable for both people and the environment, and must be organised in an environmentally-friendly way. In this context, the Transit Agreement between the EC and Austria, despite some criticism, can be seen as a step towards a future-orientated common transport policy, since it takes into account the principles mentioned above, for example:

- the intention to manage the increase of growth in road traffic by rail and combined transport;

- the reduction of NO emissions of the recorded transit road haulage by 60% by the year 2003 (basis: 1991);

- limiting the number of lorry trips to a maximum value of 108% of the traffic of the year 1991;

- basic consensus on step-by-step introduction of the internalisation of external costs in transport.

With the Transit Agreement - whose regulations must be kept effective without any restraints even in the case of Austria's accession to the EC - an important precondition was established ensuring that Austria will not be overrun by international road haulage.

According to the principles of the Transit Agreement, further transport treaties will be concluded with other central European countries. These treaties, in addition to the limitation of road haulage, also cover provisions for environmental standards in transport as well as measures concerning the extension and facilitation of rail and combined transport.

Henceforth, intensified activities will also be required to achieve a considerable shift from road and short-distance flights to rail passenger transport. Apart from the extension of the rail network, organisational and marketing measures are required. Public transport has to present itself as an integrated overall system with co-ordinated schedules for trains and buses and with attractive offers at reasonable prices, especially for families and small groups. To some extent, transport of luggage is still a weak point. Innovative logistic solutions for luggage services in tourist traffic would obviously greatly contribute to increasing the attractiveness of public transport.

For certain target groups, the improvement of rental car services at the destination is a substantial criterion for using rail over long distances.

Corresponding to the goals of the Austrian transport policy to foster environmentally-friendly transport modes such as rail and inland waterways, projects to extend road infrastructures in order to enlarge road capacity must be reviewed very carefully in each case.

Nevertheless, totally stopping the financing of road infrastructures would neither meet ecological nor traffic security aims.

Therefore, measures improving road infrastructures will probably focus on the following sectors:

- construction of by-pass roads;
- infrastructural noise-protecting measures;
- elimination of weak points in order to avoid accidents;
- improvement of the infrastructure for pedestrians and cyclists; and
- rebuilding of thoroughfares to improve compatibility of motorised traffic.

3. Current problems concerning new construction and extension of the transport infrastructure: consideration of long-term solutions

Although ecological aspects are taken into account in a very comprehensive way, the extension of the traffic network is limited. This limitation is due to the noise and particle emissions generated by the use of the transport infrastructure, the lack of sufficient free areas and, more and more frequently, the unwillingness of the population to accept new road and rail infrastructures. As stated in the EC White Paper issued in 1992, roads cover more than 1.3% of the total Community surface. Taking into account that main roads often cause noise and pollution disturbances within a distance of several hundred metres of the road itself, one can understand the increasing resistance against new trunk roads. Resistance against new railways often results from the fear of additional noise. In fact, the participation of the people concerned must form an integral part of the decision-making process in infrastructure planning. To ensure that this process of discussion does not exceed a reasonable time limit, adequate procedures must be elaborated.

The financing of the necessary new constructions and extensions of the transport infrastructure is an intensively-debated issue in Europe. In this respect, two elements seem to be of prime importance. Firstly, the creation of general infrastructure funds for all transport modes so as to guarantee a flexible financing of different transport modes. Secondly, the involvement of the private sector to increase the resources available for infrastructure investments. This does not only include pure financing operations to be repaid from public funds, but also private financing to a reasonable extent.

Probably the most important aim in the area of transport economy is to charge traffic for real costs, including external costs. At present, transport users generally contribute towards only a part of the infrastructure costs, ie the costs of construction, operation and maintenance. The costs of accidents and environmental damage are to a large extent neglected. According to an analysis carried out by Professor Tichy in 1989, road traffic covers 49% of its costs and rail traffic 60% (including external costs). In Austria, the cost of road accidents has already reached over 40 billion Austrian Schillings a year; only about one third of this is covered by personal liability insurance for vehicles.

When the present distortions in competition for rail and inland waterways have been eliminated, it will be easier to obtain private funding for railway constructions, inland waterways and combined transport.

Without private capital - eg for buying special wagons and modern trans-shipment facilities for harbours and combi-terminals - environmentally-friendly transport modes in Europe as a whole and especially eastern Europe are in jeopardy of being more and more disadvantaged in comparison to road transport.

It is essential that the necessary economic framework conditions are laid down on an international level in the form of long-term transport agreements. The Transit Agreement between Austria and the EC represents the first example of such an agreement.

3.1 Avoiding traffic in a division of labour based economy? Decoupling of economic and traffic growth

European economic integration is advancing; all prognoses show a further increase in traffic. Are we able to achieve the goal of avoiding unnecessary traffic in the light of the forthcoming EC internal market and of the economic integration of eastern European countries in transition?

Personally, I am of the opinion that even in a division of labour-based economy, several steps are possible:

- improvement of transport logistics to avoid empty lorry trips and insufficient use of capacity. Electronic data-processing network systems (freight-stock exchange) and co-operation between transport operators in combined freight distribution centres for rail, road and ship transport can substantially contribute to this goal;

- removal of export subsidies which would be counterproductive from the transport and environmental political point of view;

- know-how transfers and manufacturing under licence instead of a dispersal of economic activities and additional freight transports.

The increase in the costs of traffic with regard to the "polluter pays" principle, widely discussed in the EC, and the taking into account of external costs, will make traffic-reduction operations more profitable.

Thus, transport and economic experts should work together to try to find solutions to break the correlation between economic and traffic growth. An ecologically-positive decoupling between energy consumption and economic growth has already proved successful in many cases.

Regional planning measures can contribute to shortening the distances covered in daily life. A balanced distribution of homes and places of work can also contribute to shortening working distances. Recreation areas sited near cities can reduce the need to escape by car.

Regional planning can also substantially contribute to an efficient management of European traffic flows by marking industrial and plant areas in a way which provides for feeder lines. Transport by inland waterways should also be taken into consideration when planning business sites with high transport volumes. Finally, regional planning should include areas for freight distribution centres and actively support the choice of tracks, especially for new railway lines. In general, an intensive, outcome-orientated, international co-operation should be envisaged.

3.2 The Austrian Federal Network Plan (FNP): an instrument for making the planning and decision-making process more objective

Last year, Austria started preparatory work for the Federal Network Plan (*Bundesverkehrswegeplan*). The main goals of this plan are the following:

- The integrative co-ordination of investments for the transport infrastructure: the Federal Network Plan should relate to the different transport modes such as rail, road and inland waterways as well as to links between airports and the road and rail network. An essential goal of such an integrative co-ordinated transport system is to achieve the effects envisaged in the transport field and the environment by an economical and efficient use of resources;

- The facilitation of co-operation between neighbouring countries, regions, local governments and transport operators on the basis of a long-term, well-consolidated federal investment fund programme;

- The establishment of rules to ensure a well-founded and duplicable decision-making process for the extension and new construction of infrastructures.

Close contact is established with the population concerned through the development of the FNP. As soon as concrete proposals are under consideration, a general discussion is launched. Within this process the special requirements of groups which are less well-organised or likely to suffer discrimination are taken into account. These groups include users of public transport, housewives, children and handicapped people. However, participation of citizens in the decision-making process must be limited to a reasonable extent: projects which would benefit hundreds of thousands of people must not be hindered by minorities just because of vehemently-expressed but unjustified objections. In such cases, comprehensive persuasion must be exercised, but in the interests of public welfare a quick realisation of the project must not be jeopardised.

3.3 An offensive for railway, inland waterway and combined transport in the eastern European countries in transition

In the central and eastern European countries, railways often have the image of forming part of the old sedate and disliked state machinery. On the other hand private cars represent a symbol of personal freedom while lorries represent a profit-orientated market economy. As yet, large sections of the population - as was the case in the western countries in the mid-seventies - have no feeling for the problems created by road traffic. Within this framework, it is obviously difficult to create an atmosphere favourable to environmentally-friendly transport modes and traffic-related standards. Teaching in schools should produce results. Even more effective would be positive examples given by western countries. If environmentally-friendly transport policies are consequently put into practice, the central and eastern countries will be more convinced than they would be by theoretical advice. Empirically-successful technical innovations are a motivation to accept such solutions. In this respect, problems should be frankly addressed and discussed.

The competent authorities in these countries in transition are willing to realise ecologically-beneficial transport solutions. Apart from financial subsidies for the extension of transport infrastructures and the replacement of the fleet, know-how transfers can considerably contribute to promoting rail, inland waterway and combined transport. The following factors are important:

- logistic services (to ensure an optimal utilisation of the available infrastructure);

- marketing strategies (target group-orientated offers, new production profiles for passenger and freight traffic);

- use of telematic and computerised communication systems (reliability and controlling of freight traffic).

In contrast to a planned economy, transport operators have to provide for flexible and consumer-orientated transactions in a market economy. In this respect, railway companies in the eastern countries in transition frequently display a considerable backwardness. Good training programmes for logistics, marketing and data-processing can help railway and inland waterway companies to reach better market positions more quickly. Skilled workers can act as a "multiplier" to improve the image of non-polluting transport modes.

Nevertheless, infrastructure investments must be made, for merely carrying out organisational improvements will in the long term prove insufficient to meet the challenges of the transport system. In the short term, training, know-how and marketing within railway, inland waterway and combined transport - especially in the countries in transition - are the most important factors for a long-lasting, ecologically-orientated development of the whole European transport system.

The "hardware" such as the transport infrastructure and transport means, and "software", such as logistic and marketing as well as the legal and economic framework conditions, must complement each other in transport operations, in order to achieve a long-lasting, ecologically and socially acceptable development.

4. Final remarks

The European transport system is faced with enormous challenges: the huge increase in traffic must be dealt with in an ecologically, economically and politically sound fashion. For this reason, not only a European planning of infrastructures but in particular a common future-orientated transport policy is required. The course for the transport system of the next 30 or 40 years is being set at this very moment. Only joint international efforts will allow us to avoid specifically undesirable developments.

PLANNING OF COMMUNICATION NETWORKS IN CENTRAL EUROPE IN THE NEW POLITICAL AND ECONOMIC CONTEXT: PROBLEMS OF INFRASTRUCTURE-PLANNING IN CENTRAL EUROPE WITHIN THE EUROPEAN TRANSPORT NETWORKS

Development and simulation of goods traffic through the transalpine North-South corridors in France, Austria and Switzerland

Professor C. HIDBER
Institute of Transportation, Traffic,
Highway and Railway Engineering
Swiss Federal Institute of Technology
Zurich, Switzerland

1. Introductory Remarks[1]

The North-South traffic over and through the Alps is one of the most important flows of long-distance freight traffic in Europe. These traffic connections over and through the Alps are becoming more and more important. Since the end of 1992, the European Community (EC) has introduced free trade across the borders. Switzerland and Austria lie directly on the North-South main axis that connects Italy with northern France, western Germany, the Benelux countries and Great Britain. As yet, neither of the two countries is a member of the EC and they follow their own transport policies (by no means geared to confrontation). In contrast to Switzerland, which is not expected to become a member of the EC within the next few years, Austria will begin membership negotiations in the near future. This situation creates a potential for conflict in the transportation field, due to the extremely different gross weight limits for trucks: Switzerland allows a maximum of only 28 (metric) tonnes, whereas the EC and Austria allow 40 and 38 tonnes respectively. Currently, this involves long (and costly) diversions for "overweight" trucks, if piggy-back facilities are not used or if the goods are not shipped by rail from start to finish. Since the beginning of 1993, a Transit Treaty has been put in force between Switzerland and the EC. Nevertheless, under certain stipulations, only 50 trucks of 40 tonnes at most are allowed to traverse Switzerland per day.

1. With gratitude to Mr. J. Ch. Aquarone for the preparation of unpublished data for this article.

2. Delimitations

Several delimitations are necessary in order to avoid misunderstanding. Only the traffic traversing the Alps in France, Switzerland and Austria is considered in this study, or more precisely, the traffic between Fréjus/Mt. Cenis in France and the Brenner Pass in Austria (see Fig. 1). The traffic crossing further east, namely over the Tauern and Karawanken passes, is not included in this study, as no "rocade" possibilities exist.

As Fig. 1 shows, seven important transalpine passes exist between Mt. Cenis in the west and the Brenner Pass in the east, of which three corridors can be defined and are to be examined in this study. Transport corridors mainly distinguish themselves in that they deal more or less on the same axis, with different modes of transport which complement each other. In the Alpine region, the two most important modes of transport are rail and road. The three corridors to be examined are:

- Fréjus/Mt. Cenis in France
- the Gotthard in Switzerland
- the Brenner in Austria

The goods transport of about 60 million tonnes in 1991 highlights the importance of these three corridors and represents 75% of the total transalpine goods traffic.

Pipelines transporting oil, etc, are important modes of transport, but will not be discussed in this study, since they function quite well. Although in Switzerland alone over 10 million tonnes of oil per year are transported, only problematic transalpine traffic will be discussed here.

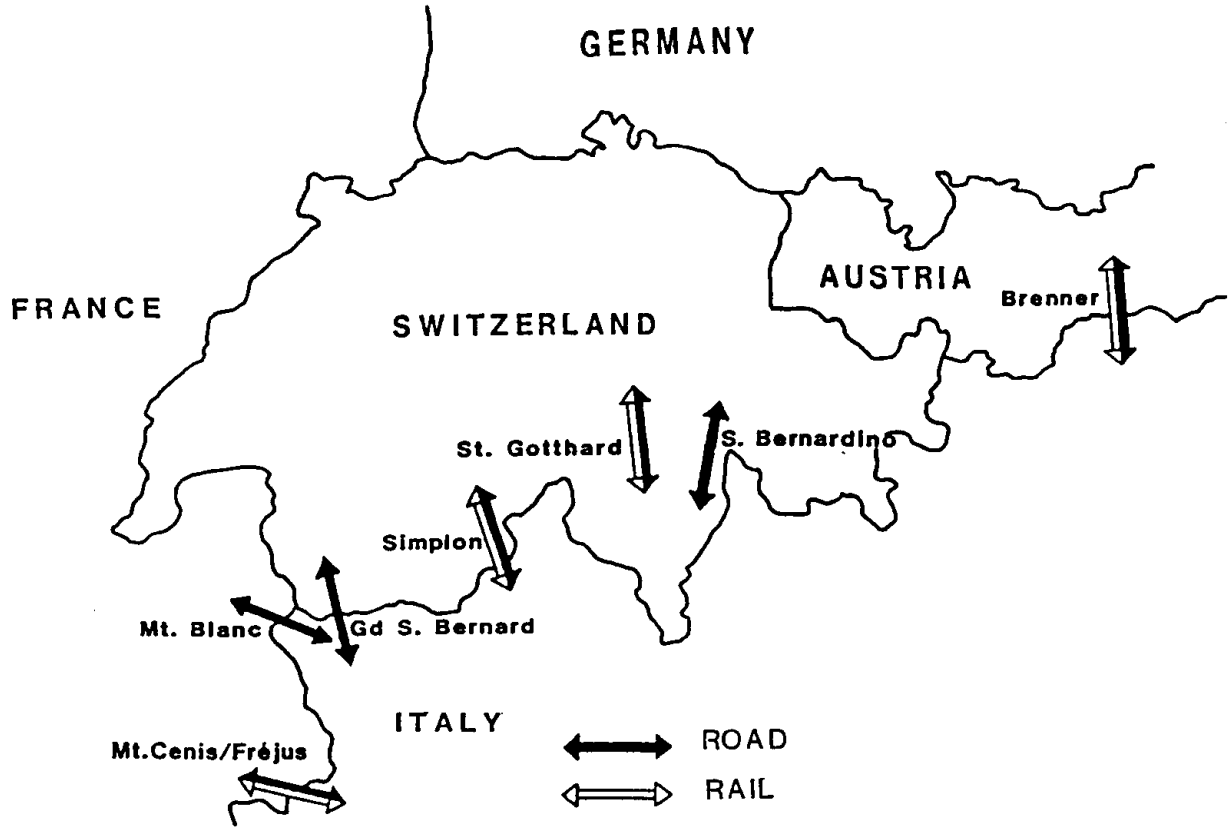


Fig. 1: The most important passes and tunnels over and through the Alps

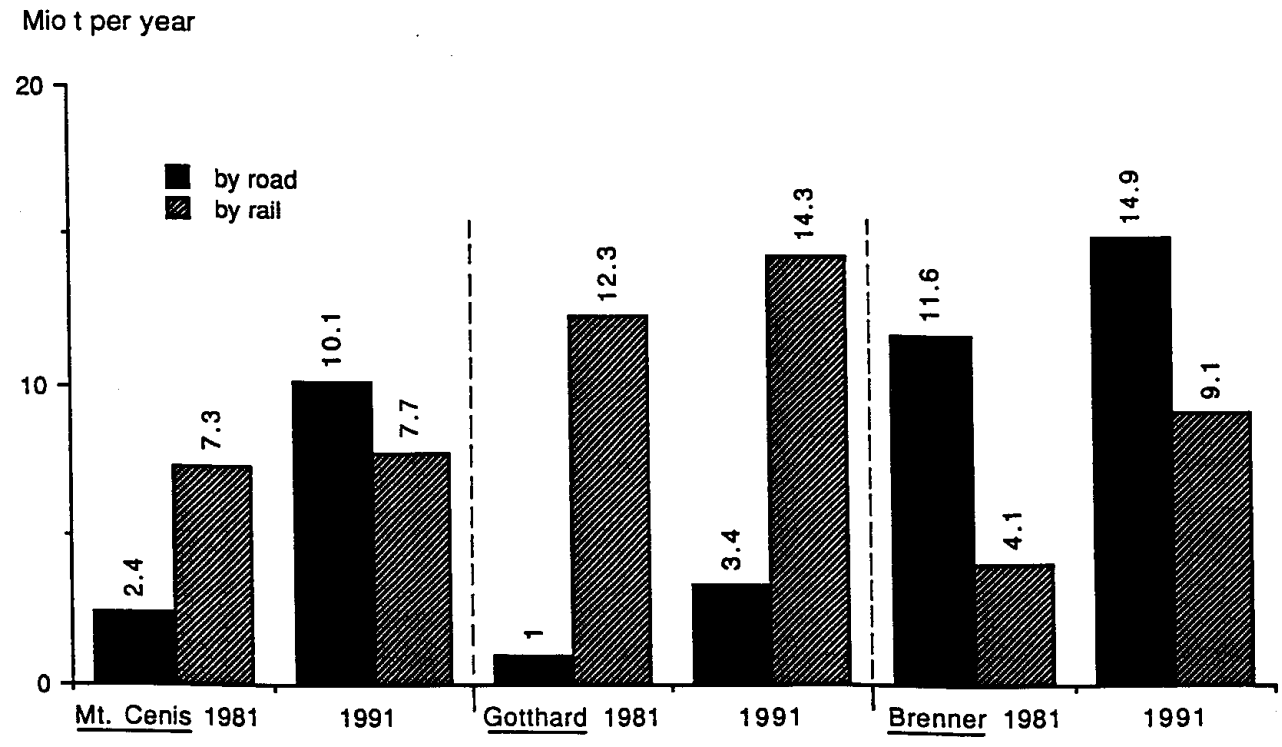


Fig. 2: Goods traffic development from 1981 to 1991 in the three corridors

3. Development since 1981

Goods transport development has had a general tendency to increase on the three corridors, but in varying proportions, depending on the economic development and different transit policies of the three countries (see Fig. 2).

Total traffic on the three corridors increased by 54% from 1981 to 1991, with an acceleration of transport growth. 981 to 1986, growth rate amounted to 35% and then from 1986 to 1991 reached 5%.

Development of **rail traffic** has been differentiated. In the first half of the eighties, stagnation occurred on all three corridors:

	1981	1986
Brenner	4.1	4.3 Mio t
Gotthard	12.3	11.8 Mio t
Mt. Cenis	7.3	7.0 Mio t

In the second half of the eighties, an obvious return to transport growth is found:

	1986	1991
Brenner	4.3	9.1 Mio t
Gotthard	11.8	14.3 Mio t
Mt. Cenis	7.0	7.7 Mio t

The total increase in rail traffic from 1986 to 1991 amounts to 35%, or a yearly growth of over 6%. A predominant part of this growth is (nationally required) piggy-back traffic. In Switzerland, for example, piggy-back transport is subsidised by 300 Swiss francs per vehicle. Especially noticeable is the increased transport on the Brenner, which has more than doubled in five years.

Road traffic saw a large increase in all three corridors at the beginning of the eighties. Moving slowly from 1981 to 1986, the Gotthard saw a growth of over 130%, mainly due to the opening of the tunnel, and yet the relatively small amount of goods transport was conditioned by the 28 t total weight limit. The largest traffic increase was shown to be on Mt. Cenis, with +130%, or a growth rate of 19% per year. Moreover, between 1981 and 1986, the Brenner carried the largest load and had a growth rate of nearly 6%.

	1981	1986
Brenner	11.6	15.2 Mio t
Gotthard	1.0	2.3 Mio t
Mt. Cenis	2.4	5.7 Mio t

From 1981 to 1986, total growth in road traffic amounted to 55%, or about 9% per year. From 1986 to 1991, total growth levelled off considerably, although it stayed relatively high, with 22% or 4% per year.

	1986	1991
Brenner	15.2	14.9 Mio t
Gotthard	2.3	3.4 Mio t
Mt. Cenis	5.7	10.1 Mio t

The largest increase can again be found on Mt. Cenis. Traffic on the Brenner even slightly decreased, doubtlessly driven back by the 1989 night ban and the introduction of contingencies.

To summarise, it is of great interest to juxtapose the development of the "model split", that is the relative development of both modes of transport.

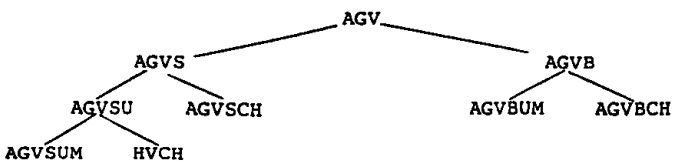
	1981	1986	1991
Rail	61%	50%	52%
Road	39%	50%	48%

Taking the three corridors together, railways have unexpectedly succeeded in recovering the share they had lost since 1986. Consequently, there was a small decrease for roads. Naturally, the results are not representative of the total transalpine traffic.

4. Possibilities for future developments

In contrast to the above chapters, the following thoughts and results refer to the total transalpine traffic.

Together with Dr. Biniek of the University of Szecin, Poland, we have tried to build a model which would give an insight into the many intricate inter-relations of goods traffic across the Alps. This model enables the sharing of future developments related to measures taken in transport politics.



Legend

AGV:	Freight traffic across the Alps
AGVS:	Freight traffic on the road
AGVB:	Freight traffic by rail
ABVSU:	AGVS which by-passes Switzerland via France or Austria

AGVSCH:	AGVS transit through Switzerland
AGVSUM:	AGVSU which by-passes Switzerland via France and Austria
HVCH:	AGVSU using Swiss piggy-back facilities
AGVBUM:	AGVB which by-passes Switzerland via France or Austria
AGVBCH:	AGVB transit through Switzerland

In a first step, the total AGV is estimated. Then the distinction is made between road and rail. Rail is thereafter split into that transiting through Switzerland and that by-passing Switzerland via France or Austria. A similar procedure is applied to goods traffic on the road, only that here an additional step, the split between piggy-back transiting through Switzerland and piggy-back traffic by-passing Switzerland, is necessary.

The total system is treated with three different modules:

- Demand estimation for routes through Switzerland, France and Austria, including the split between normal rail traffic, road and piggy-back traffic;
- Capacity module, which takes into account the capacity restraints of normal rail traffic, road and piggy-back facilities;
- Financial module, which takes into account cost-functions for distance and time costs, goods rates, levies, taxes, etc.

These three modules result in partially different values for traffic on the different systems; these differences must be equalised in a further step.

The job is not yet finished, but a prototype of the model is workable. Qualitatively speaking, the results obtained are correct, the quantitative finesse can already be improved. Several simulation tests have been run with this prototype model. The tests were set up without regard to their political desirability or feasibility. A first example is shown in Fig. 3. Through lowering tariffs by 70% and reducing travelling time by 60%, piggy-back traffic in Switzerland could be increased by up to 2 million tonnes per year.

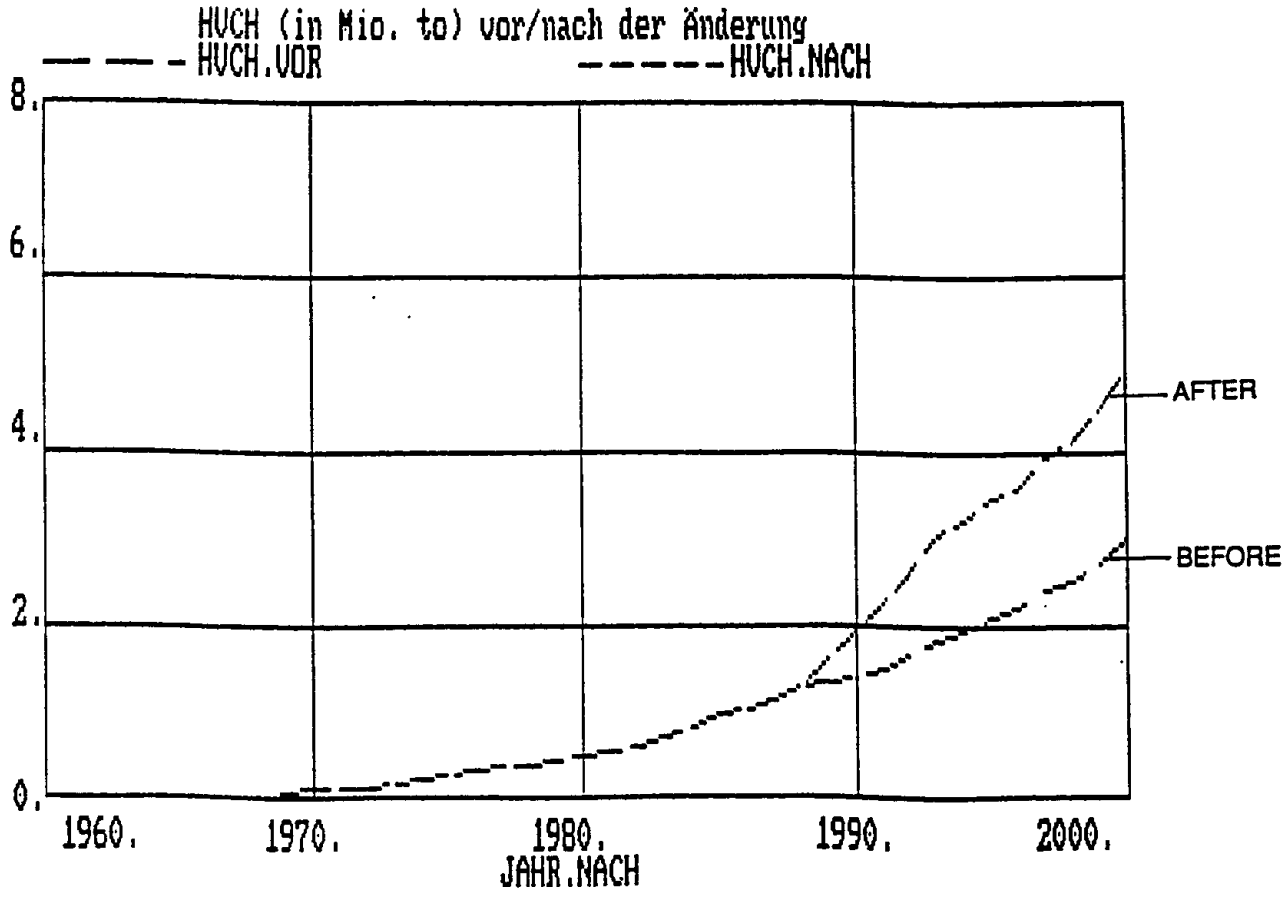


Fig. 3: The effects on piggy-back traffic of lowering tariffs by 70% and reducing travelling time by 60%

In a further example (Fig. 4), the influence of waiting time on rail and road transport is shown. On the assumption that the waiting time for rail transport could be cut by half, there would be much diversion of traffic onto railways and a lessening of pressure on roads. Thereby it is proved that the total time of transport is of increasing importance for goods transport.

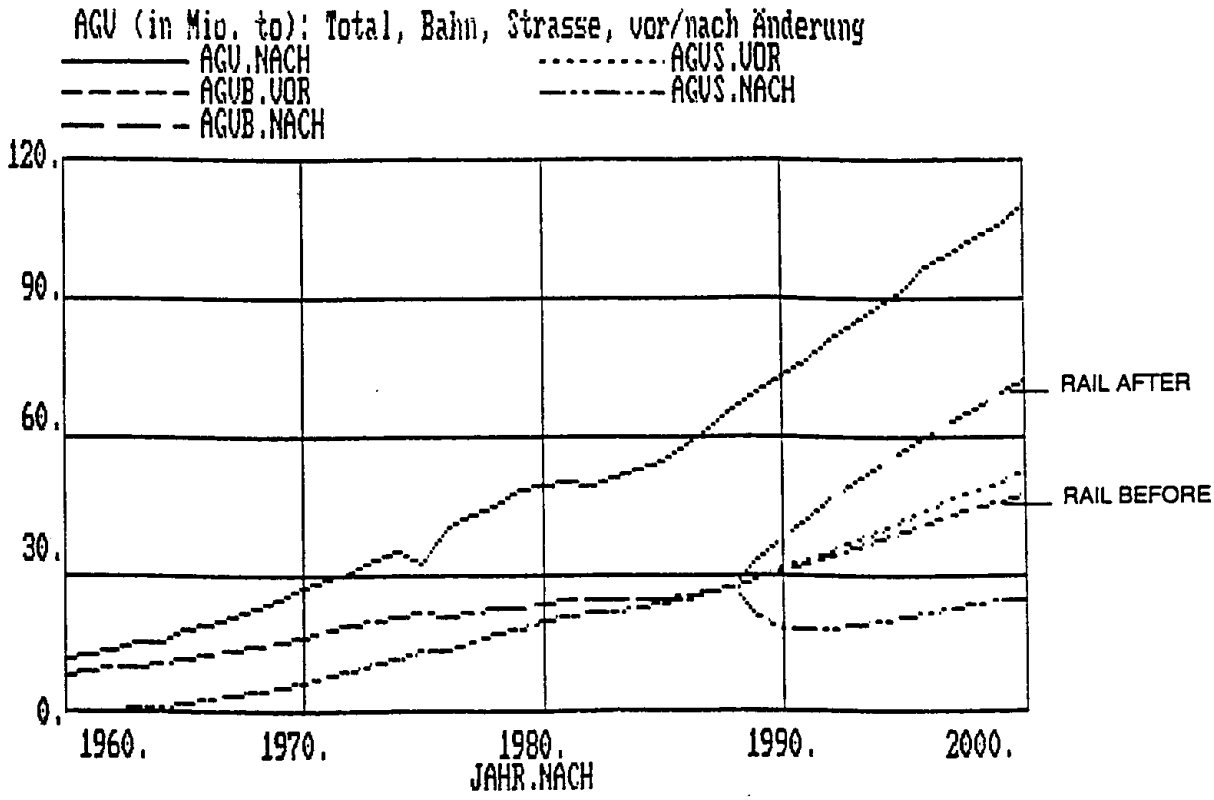


Fig. 4: The influence of a waiting time reduction of 50% on railways

5. Summary

Only those traffic corridors are considered which consist of at least two important transport carriers in close proximity. This situation exists in Austria with the Brenner, in France with the Fréjus/Mt. Cenis and in Switzerland with the Gotthard routes. These traffic corridors carry the bulk of the total European North-South traffic, ie 66% of road traffic and 85% of rail traffic.

In 1991, the total traffic load along these three corridors amounted to 60 million tonnes. Its distribution between rail and road, however, is not at all uniform:

	Rail	Road	total load
Brenner	38%	62%	24 mio t
Mt. Cenis	43%	57%	17.8 mio t
Gotthard	81%	19%	17.7 mio t

How can these differences be explained? In order to be able to simulate and test future developments in relation to traffic policies, a special model for transalpine goods traffic (AGT) has been developed, based on system dynamics and taking into account the flow of traffic through Austria, France and Switzerland. The total development from 1960 to 1988 is included and, depending on the input data, the possible future consequences up to the year 2005 are calculated. The chief variables that can be influenced are:

- the admissible total weight
- the relative change of transport prices
- the relative change of travelling times

The AGT model is described more closely and the results of some computational runs are shown.

Literature

Transalpiner Güterverkehr 1989. Ueberblick über die Entwicklung seit der Eröffnung des Gotthard Strassentunnels. GVF - Bericht 2/1991. EVED. Bern 1991.

GVF-NEWS Nr. 16: Entwicklung des alpenquerenden Güterverkehrs 1979/80 bis 1991 (Alpensequent Modane-Brenner). Generalsekretariat EVED, Dienst GVF. Bern 1992.

Biniek Z. / Hidber C. u.a.: Ein systemdynamisches Simulationsmodell des alpenquerenden Güterverkehrs. IVT - Institut ETH - Zürich (noch nicht veröffentlicht).

PLANNING OF COMMUNICATION NETWORKS IN CENTRAL EUROPE IN THE NEW POLITICAL AND ECONOMIC CONTEXT: PROBLEMS OF INFRASTRUCTURE-PLANNING IN CENTRAL EUROPE WITHIN THE EUROPEAN TRANSPORT NETWORKS

Mr Federico CEMPELLA
Ministry of Public Works
General Directorate for Territorial Co-ordination
Italy

I. Preamble

In recent years, we have seen far-reaching and rapid changes in the socio-economic and political landscapes of Europe, for which opportunities in Eastern Europe appear wide open and may be summarised as follows:

- the process of internationalisation and globalisation of economies, together with the present recessive trends, are leading to the rapid reformulation of markets and areas of economic development;

- the growing integration of the EEC countries is accompanied by an increase in the areas of regional and local co-operation, particularly evident in transfrontier areas;

- the crisis in the different socio-economic systems of Eastern Europe, the resulting far-reaching changes in political and institutional balances and the increased mobility of people and goods between East and West are leading to completely new fields of reflection.

The entire phase of European Community history was oriented towards the rationalisation of the trends in different countries within a socio-economic and politico-institutional reference framework essentially defined as "stable" within clearly determinable limits. The identity and compactness of the European area, with all its internal complexity, were guaranteed by the existence of well delimited geopolitical frontiers, corresponding to the different national realities, which benefited from a buoyant economy thanks to European unity at sectoral level (agriculture, industry, telecommunications, etc).

All these phenomena are giving rise to problems of a completely new type and making it necessary to identify and co-ordinate the geographical and territorial dimensions of co-operation and development on the scale of a "continent" whose frontiers and references have totally changed.

A qualitative leap is required in the definition of policies and strategies on the part of those responsible for supranational orientation, programming and co-ordination. In short, new strategies are called for with, in particular, a different type of relationship between economic development and spatial planning at the European level.

The new geopolitical situation in the territories delimiting the European Communities to the East is creating relationships of proximity and exchange between what were formerly sharply separated realities. In addition, within the EEC new relations are developing between centres and peripheries, between national and local frameworks; the regions, like the towns, are playing an ever more active and determining role in development choices.

The "restricted" area of the EEC is thus expanding and becoming more complex in two ways: first there is the

"in-depth" economic and political integration with the introduction of the Single European Market and the creation of monetary union and second, there is the enlargement of the geographical context of European economic and political integration.

This enlargement also concerns the growing number of problems which the European Community has to deal with (demography, environment, etc) and the influence which both the choices made within different countries (in particular countries located in a logistically strategic position) and operational choices at EEC level may have on extra-Community frontier zones.

II. A "global approach" for Community transport policy (CTP)

The new reality calls into question, within the Europe of the Twelve, all the purely economic formulations and brings to the fore the requirement of a "global approach" for Community transport policy (CTP). The Community guidelines for the development of transport policy have the merit of placing this sector among the determining sectors for the new phase of post-Maastricht European policies, first because the Community market requires the free and efficient movement of persons and goods and, second, because the different transport modes have to be made coherent with one another both at national level and at European level proper, through promoting intermodality and technological integration. Furthermore, all intervention aimed at improving transport safety is of great importance. The same applies to the directives concerning transport organisation and workers and employers in the transport sector.

There is nevertheless another point which can never be stressed enough: that of spatial planning.

If the aim of CTP is to strengthen economic and social cohesion through the development of transport infrastructures which can reduce the disparities between the regions of Europe and help establish between peripheral regions, or those isolated (because of natural constraints), and the central regions of the Community, then it is necessary to be conscious of the existence of a true "European territory". Only a Community regional planning policy can do anything about these disparities within the "European territory" and unite the European space, at the same time establishing new relations with the countries of the East and of the Mediterranean.

Community action so far has been more of an accounting nature, with financial aid to the regions, than in the spirit of a true Community spatial planning policy, which implies taking responsibilities which so far only certain governments have been willing to do.

As a result, environmental problems too (air and water pollution, the chaos in urban transport, acid rain, desertification, the greenhouse effect, the uncontrolled exponential growth of wastes of all types, the uncontrolled impact of infrastructures on land use, etc etc) tend to be resolved in line with classical economic theory, which considers the ecological problem mainly from the simple aspect of market values and financial compensation.

The problem of the environment needs to be dealt with, if the evaluation of different projects is considered from the standpoint of multi-dimensional initiatives taking account of the natural and socio-cultural environments, in the context of Community spatial planning, a basic condition for the "sustainable development" called for on all sides.

It is thus a matter of ensuring the viable and sustainable utilisation of resources through simultaneously integrating the natural potentials and constraints.

What is more, "space" is a scarce commodity which cannot be reproduced and must not be wasted. It is for this reason that spatial planning is one of the essential concerns for the new governments of Eastern Europe. The fact is that no-one can deny that these countries too have to deal with pollution and risks no less serious than those found in the West. It is also on the basis of these considerations that it appears that the problem of the proper safeguard and management of the natural heritage depends directly on democracy and the rights and liberties of the citizens. As a result, regional and spatial planning goes far beyond the sectoral dimension and becomes a decisive factor in management and development in the definition of "trans-European networks".

III. European macroregions and infrastructural networks

Technological change is revolutionising communications and accelerating the processes of concentration: physical and logical networks are increasingly uniting the main European regions, the urban areas, through facilitating the mobility, flexibility and rapidity of exchanges.

The Europe of the Twelve seems to have become aware of the importance of the major network systems. Motorways, high-speed rail services, air transport, inland waterways, water and energy distribution, telecommunications can no longer be seen only in the national context of the Common Market countries.

What can be said for all policies of strategic significance is particularly valid in the case of these sectors which are doing a great deal, through channelling and

distributing the flows of persons, goods, energy and information, to redefine the development zones and create the group of macroregions which in recent years have attracted the attention and interest of the scientific world and the most important geographical institutes, and in particular the Council of Europe, the EEC, DG XVI, DATAR and the Hanover Academic Institute. Our country is very interested in these initiatives and intends to participate in them.

The studies carried out so far have identified the following macroregional systems which structure the European territory:

- the system of mega-conurbations in the north which links southern England to the Po Plain, the system in which European development has historically been concentrated;

- the new system of regions opening to the north-west Mediterranean;

- the Median Alpine system, the backbone of which is constituted by the Alpine chain, rich in medium-sized towns which are dynamic and specialised;

- the Atlantic coast system;

- the system of poor regions of the south;

- the macroregion which unites the Hanseatic towns with the Adriatic coast, densely populated with regions with strong cultural and industrial traditions, rich in potential (figures 1, 2, 3, 3b).

It is in this context that it appears absolutely essential to have a concept of territorial equilibrium to provide a framework for decisions on environmental questions and major infrastructural projects which make such demands on natural resources and values, with soil erosion and pollution and visual disamenity.

There can be no doubt that concerning infrastructural choices, the economic programming of transport networks and regional and spatial programming must be taken together.

Many recent studies highlight the shortcomings in the infrastructures of the ex-socialist countries, victims of the lack of economic growth and investment in recent years.

This is the case with the rail networks which are generally dense, but usually only single-track and thus with a low transport capacity and a correspondingly negative impact on transport times. There is also a low level of electrification and rolling stock is obsolete. Similar remarks can be made about road transport in which there is an acute shortage of motorway links.

The rapid reinforcement and modernisation of networks taking place in the countries of Western Europe thus contrasts with the fragility of the Eastern European systems and threatens to increase the gap between the different countries, already accentuated by the national crises which are aggravating the social and economic weaknesses.

Disregarding these key points, whose consequences can be measured only in the longer term (and at the level of the system rather than simply zones or limited territorial areas) could bring dangerous bottlenecks and hamper the realisation of a true Single European Market and the competitive strengthening of the "continental economic system".

IV. Integration between trans-Community networks and trans-European transport networks

The principal objective of European Community action in this field is the programming and development of "trans-European transport networks".

While on the one hand these are essential in the context of a system of open and competing markets to improve links with third countries (and in particular those of Eastern Europe and the Southern Mediterranean), on the other, these networks represent an opportunity to resolve major problems concerning the integration of transport at community level.

Interconnection and through operation, the completion of routes through the construction of "missing links", the opening up of entire regions and better services to ports are the main advantages at Community level of the development of trans-European networks.

Particular attention therefore needs to be paid to the evaluation and definition of the scenarios in which possibilities for action are to be placed.

It has been noted (see Brunet-GIP RECLUS) that the corridors proposed in the transport network plan proposed by the EEC in 1989: the North-West/South-East corridor from the United Kingdom to Italy and the North-East/South-West corridor from Denmark to Spain - completed by a series of longitudinal links - essentially tend to confirm the dominant and central role of the "mega-conurbation axis": the historical centre of central and northern European development, with a series of extensions in the direction of the Iberian Peninsula and northern Italy (Fig. 4a).

The predominance of the North-South links seems destined, in the course of the next few years, to consolidate the economies of agglomeration seen at present, attracting more human resources to the historic poles of economic growth.

The nodal points where the centres of political, economic and administrative decision-making are concentrated will thus continue to attract businesses. At the same time, the tendencies towards decentralisation are increasingly present and may constitute a factor for the stimulation of peripheral areas and the enlargement of development zones.

In this context, it seems important to strengthen the possibilities for distribution and supply over East-West corridors much more than is at present planned. These corridors may be described as follows:

- the corridor linking London with Moscow, via Amsterdam, Berlin and Warsaw;

- the corridor linking Paris with Constanta, via Metz, Munich, Vienna and Budapest;

- the corridor linking the Atlantic (Bordeaux) with the Black Sea (Varna) via Lyon, Turin, Trieste, Zagreb, Belgrade and Bucharest;

- the corridor linking northern Spain (Barcelona) to France and Turkey (Bursa), via Marseille, Piedmont, the Tyrrhenian coast, Rome, Brindisi, and Thessalonika (Fig. 4b).

Particular attention should be paid to the West-East corridor of the southern Mediterranean which, from the Maghreb countries, with the planned link at Gibraltar, embraces the dynamisms present in the Iberian Peninsula (both the West through the Basque Country and the East through Catalonia), the South of France, the Po Plain and the areas of central and eastern Europe; this corridor links up (Fig. 4c):

a. on the one hand with the heart of central Europe (Hungary and Czechoslovakia);

b. on the other, through the Balkans to Greece and Turkey.

This is a strip which, amongst other things, takes on its full significance in the promotion of the development of the entire Mediterranean basin, offering a part of Europe at present suffering from severe crisis and the Maghreb countries of North Africa a possible alternative to the only too real risks of marginalisation.

On top of this is the development of the port areas of Barcelona, Marseille and Genoa. These ports, which are increasingly closely linked with the regions of central and northern Europe, may constitute, thanks to their integration, a true port axis for the Mediterranean (Fig. 5). This is one of the essential preconditions for good coastal shipping services, of particular importance to Italy on both the Tyrrhenian and Adriatic coasts.

Taking all this into account, attention should be drawn to certain aspects of the Italian Government's General Transport Plan, such as:

1. the realisation of a motorway link between the Mediterranean strip, the French Maritime Alps, the south of Piedmont and the Po Plain towards eastern Europe with an alpine tunnel under the Mercantour between Nice and Cuneo. This motorway stretch forms an integral part - since it constitutes the missing link - of the west-east Mediterranean axis described above (Figures 6, 7, 8);

2. connection of the Italian high-speed rail network to the European network to the West between Turin and Lyon and to eastern Europe (Figures 9, 10);

3. the association, at crossing points, between the high-speed line and the new European freight transport network;

4. development of short-distance shipping.

The West-East corridors in the northern part of Europe (Fig. 4b) establish priority links between the Community network and the Central European network; in particular they identify the links Berlin/Warsaw, Berlin/Prague, Nuremburg/Prague and Italy/Vienna with extension to Prague, Bratislava and Budapest.

The programming of these links forms part of the creation of the Trans European Motorway (TEM) supported by the United Nations Economic Commission for Europe and involving a network of 11,000 km of motorways between the Baltic, the Mediterranean and the Black Sea, 2,700 km of which are in service and 1,200 km under construction.

The fact is that the major pan-European axes linking the Community, Scandinavia, the central European countries, the Baltic States and the Slav Republics will soon be shaping the new configuration of Europe.

Lastly it is necessary to plan many axes linking the Community through the countries of central and eastern Europe to Minsk, Kiev, Moscow or St Petersburg, and

a southern Baltic link from Stockholm to Helsinki via Copenhagen, Gdansk, Riga and St Petersburg.

Similarly, the European East-West rail corridors are not limited to the links between the big capitals of northern Europe (Fig. 11), but fit into the complex programme of the European high-speed network (Figures 12, 13).

Around the major West-East axes, onto which the North-South corridors will be grafted, it is a true communications network which is emerging and structuring the European area through macroregional systems. The problems associated with territorial balances and the development of several regions are essential to increase the productivity of the transport networks.

The internal strengthening of the European Communities goes hand in hand with their enlargement to become a truly "continental European area", capable of handling, as has already been mentioned several times, relations with the countries of the East and those of the Mediterranean system.

It is only in this way that the demand for mobility can be met without this necessarily being transformed into migratory flows, while the rapid and efficient transport of freight by means of an integrated multimodal system creates new opportunities for industrial and productive establishments in the peripheral zones of the EEC and in the emerging countries of the Mediterranean and Eastern Europe.

The question of transport infrastructures is a matter first of all of the amount of investment necessary to enhance the networks.

The resources required are very substantial, which necessarily means that making choices is a matter of great responsibility. Europe is experiencing a complex and deep crisis, and there is opposition and resistance to many investment projects in the fields of transport, communications, energy, water, etc. The economist J K Galbraith, in his latest book ("The Culture of Contentment") states that many American parliamentarians and a substantial number of the public consider that it is not worthwhile today paying taxes for the construction of infrastructures which will be used in the years to come by all the citizens and not only those who directly contributed to their creation.

We must not fall into this type of error ourselves, but it is necessary to find a proper balance between direct state intervention and private investment.

V. New methods of analysis and organisation for the "administration" of spatial transformation phenomena

What has been said can but stress the importance of special bodies concerned with the observation and understanding of the European territory and hence programming and concerted effort at Community and supranational level, favouring integration between the structures responsible for regional and spatial planning and those responsible for the programming of communications networks. This may constitute a possible reference for co-ordinating and supporting sectoral choices in the different countries affected by Community policies.

It is in fact a matter of continuing along the path already traced in the field of defining a European combined transport network, the high-speed network, and the bilateral agreements between governments such as the exemplary agreements recently signed by the French and Italian Ministers of Transport and Public Works concerning motorway and rail links between Italy and France in the Western Alps (Paris, 9-10 November 1992 and 25 January 1993) (Appendices 1 and 2).

In these bilateral agreements, the subjects of land use, the utilisation of resources and the responsibility for the whole of the environment are of particular importance, for they constitute the essential condition for the realisation of these projects.

In this way the problems of profitability and efficiency can be resolved through more comprehensive scenario evaluations giving rise to effective positive processes in the medium and short term and avoiding the risk of aggravating the imbalances between the different European areas.

But how to organise this complex system of observation, understanding and decision-making?

The normative and organisational reference frameworks for spatial planning in the different European countries - and regions - are often substantial, but complex and not always uniform in their procedures. It should also be added that all of the "European territory" - precisely as a function of trans-European transport networks - belongs to the EEC (for example Italy has only one "Community" land frontier: that with France through the Alps, through Mont Blanc to Ventimille. To the north there is Switzerland, to the north-east Austria, to the east Slovenia, Croatia, etc).

It thus appears possible to construct new territorial programming and planning orientations at Community level on the basis of instruments which already enable all those concerned to intervene on specific problems, on the parts of the territory most sensitive to the creation of infrastructures.

We would refer in the first place to a major issue: Alpine crossings, vital for European unification and for our country, and the instrument constituted by the "Convention on the protection of the Alps" signed in Strasbourg on 7 November 1991.

This convention is not limited to EEC member countries and may thus constitute - through the careful drafting of the protocols of application - a "paradigm" for the programming and planning of the "European territory".

The fact is that in this Convention the defense of the land, the development of the region and both local and European transfrontier transport are integrated with the rational development of the resources of the area (mountain agriculture, forestry, tourism, energy heritage, etc) and the safeguard of environmental quality (clean air, groundwater systems, responsibility for the landscape, etc).

The Italian Ministry of Public Works, through its responsible technical consultative bodies (Higher Council) and administrative bodies (General Directorate for Territorial co-ordination and Defense of the Soil - DICOTER) is preparing operational modules for knowledge and analysis as well as intervention.

The Ministry is thus taking on an orientation and co-ordination role on the one hand at the service of the regions (also in support of regional legislation) and local Italian bodies and on the other to participate in the formulation of the new "rules" and "instruments" of European union.

In this connection, we must cite the complex experiment which the Ministry of Public Works is carrying out at Community level as the subject of institutional reference for the "network of land use planning research institutes" whose essential object is the knowledge and analysis of the "European territory". This initiative goes well beyond the sum of the available partial and sectoral knowledge and is intended to arrive - in the context of co-operation with all the European countries - at the definition of a project for a "European land use atlas".

In the context of these initiatives, DICOTER is able to constantly contribute its experience and knowledge on the different subjects connected with land use, taking consistent steps to equip itself with the technical and cognitive instruments necessary to understand the corresponding phenomena in order to be able to define strategies to harmonise the intervention of the state and national interest in the most appropriate fashion.

The Ministry of Public Works programme of studies and research in fact provides for the creation of the "permanent observatory of territorial change" (OSS.TER.): a support instrument for the institutional activity of DICOTER and for liaison with the similar structures at Community level; the most influential members of the technical, scientific and research fields participate in its activity.

The take-off phase of OSS.TER. is moving along the lines already traced at Community level (Europe 2000 Programme) and is characterised by a series of innovatory synergies between the technical structures of the State (technical bodies of the Ministry of Public Works and the National Technical Services of the Presidency of the Council of Ministers) and those of the consultancy and research bodies (ENEA, CNR, CNEL, university departments and specialist research institutes).

This activity corresponds to the orientations laid down by the European Parliament at its session of 22 September 1992 when it adopted the concept of a Community policy aiming at the better geographical distribution of economic activities as a function of natural and human resources, always respecting proper land use. It is in this context that the functions of the Committee for Spatial Development take on particular importance; this committee sees its priority objectives as:

a. the creation of a co-operation network between research institutes concerned with regional and spatial development and planning: a first step towards the creation of a "European land use observatory";

b. the development of a synthesis of planning policy systems in order to step up collaboration between the different parties concerned with land use management at national, regional and local levels.

It should be recalled in particular that OSS.TER supplies DICOTER with elements to contribute to the activities of the Committee for Regional Development instituted by the Commission for the European Communities.

In particular OSS.TER:

- establishes the most important forms of interaction with the activity of other observatories already in operation or being created, through the exchange of data, information, indicators and estimation methodologies;

- provides DICOTER with information and estimation instruments enabling it to situate national territorial strategies in a context of land use programming on the European scale.

OSS.TER is an organisational system which exercises its support activities for DICOTER as a function of the responsibilities attributed to the latter in the normative framework at present in force. The fields in which OSS.TER is active are:

- Support for the definition of the basic orientation for land use planning on the national territory (Article 3 L. 22 July 1975 no.382 paragraph 1 Article 81 DPR 616/77).

The results of these activities provide elements and knowledge bases of general interest for the public administration as regards the processes of planning and defining land use orientations and strategies.

- Support for the decision-making process in matters of state intervention and national interest (paragraphs 2 and 3 Article 81 DPR 616/77).

The results of these activities make the analysis of land use phenomena and hence of decision-making processes within the competence of DICOTER more efficient.

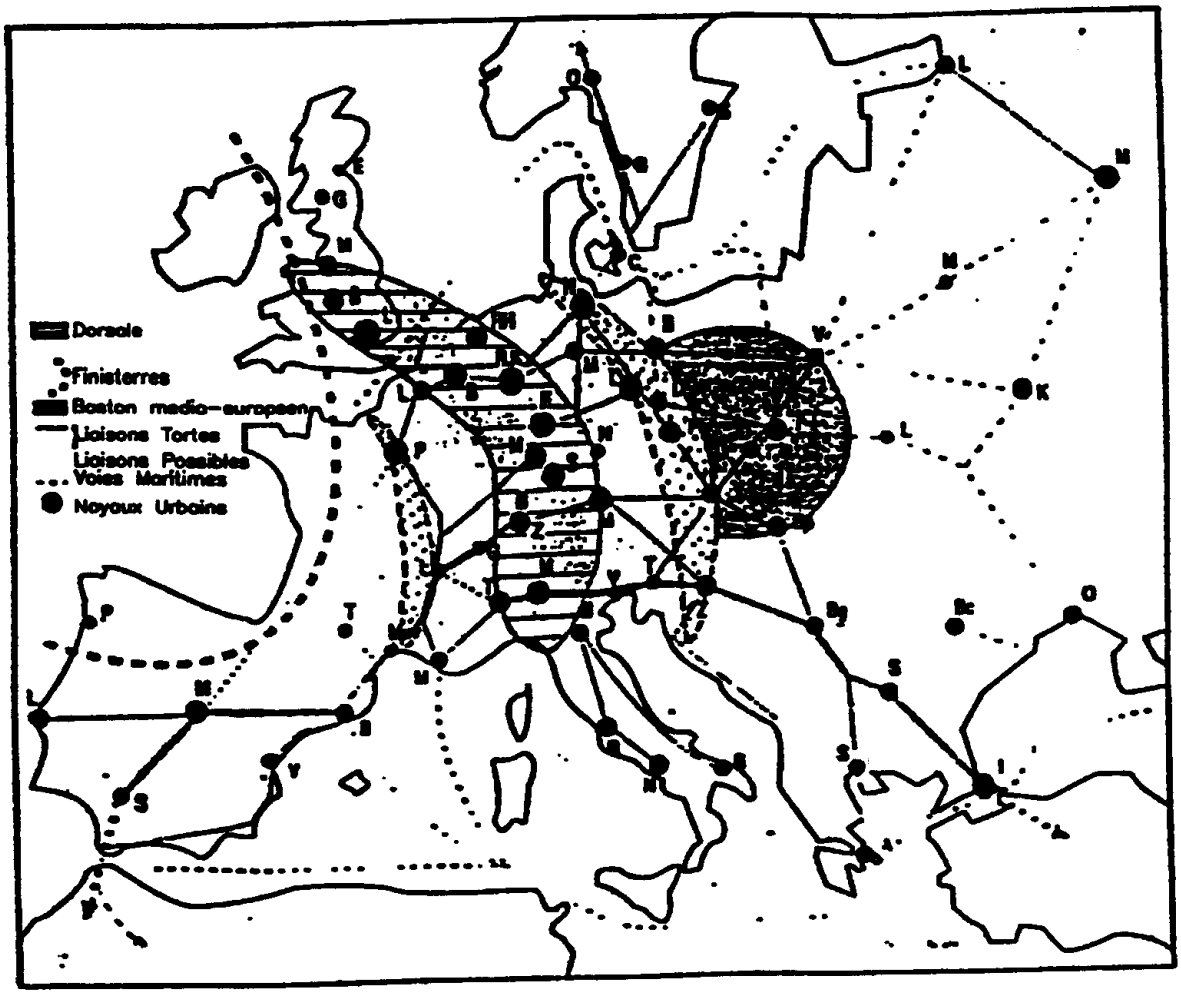
- Evaluation of the different options for defining different land use planning scenarios for the national territory and certain regional zones, according to the guidelines of the EEC Committee for Regional Development.

The field of reference for the observatory is constituted by:

a. regional development strategy at the European level;

b. the programming of intervention by the state and in the national interest.

Fig. 1



EUROPEAN COMMUNITY AND BORDERING COUNTRIES

Principal directives of development

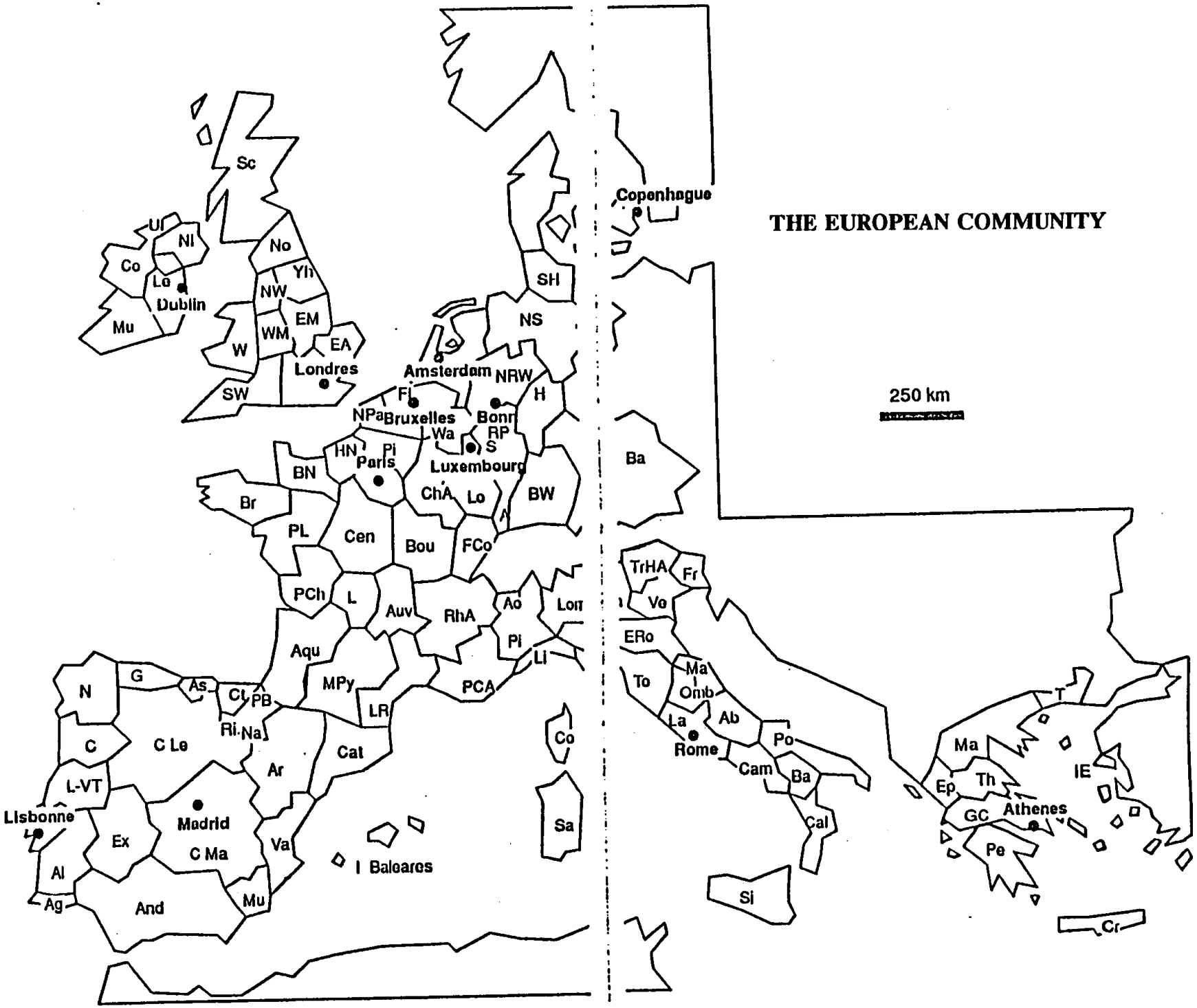

THE EUROPEAN COMMUNITY
250 km
Copenhague
Sc
Ul
Nl
Co
Le
Dublin
Mu
No
Yh
NW
EM
WM
W
EA
Londres
SW
SH
NS
Amsterdam
NRW
H
Fl
NPa
Bruxelles
Bonn
Wa
RP
S
Luxembourg
HN
Pi
Paris
BN
Br
ChA
Lo
BW
A
PL
Cen
Bou
FCo
PCh
L
Auv
RhA
Ao
Loir
Pi
Li
Aqu
MPy
LR
PCA
Co
Sa
N
G
As
Cl
PB
Ri
Na
C
C Le
Ar
Cat
L-VT
Lisbonne
Madrid
Ex
C Ma
Va
Al
Ag
And
Mu
I Baleares
Ba
TrHA
Fr
Ve
ERo
To
Ma
Omb
La
Rome
Ab
Po
Cam
Ba
Cal
Si
T
Ma
IE
Ep
Th
GC
Athenes
Pe
Cr

Fig. n.2

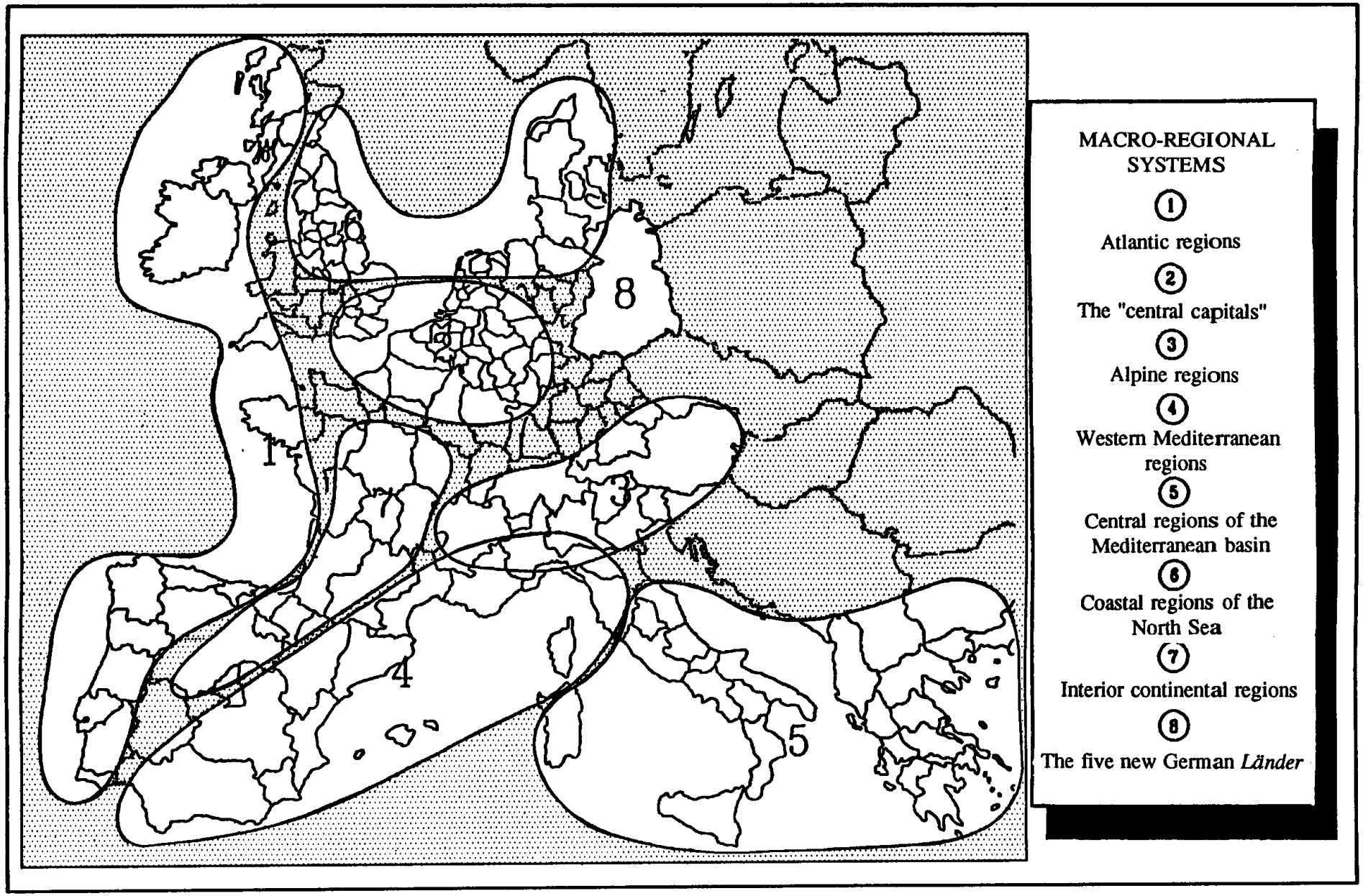

MACRO-REGIONAL SYSTEMS
1
Atlantic regions
2
The "central capitals"
3
Alpine regions
4
Western Mediterranean regions
5
Central regions of the Mediterranean basin
6
Coastal regions of the North Sea
7
Interior continental regions
8
The five new German *Länder*

Fig. n.3

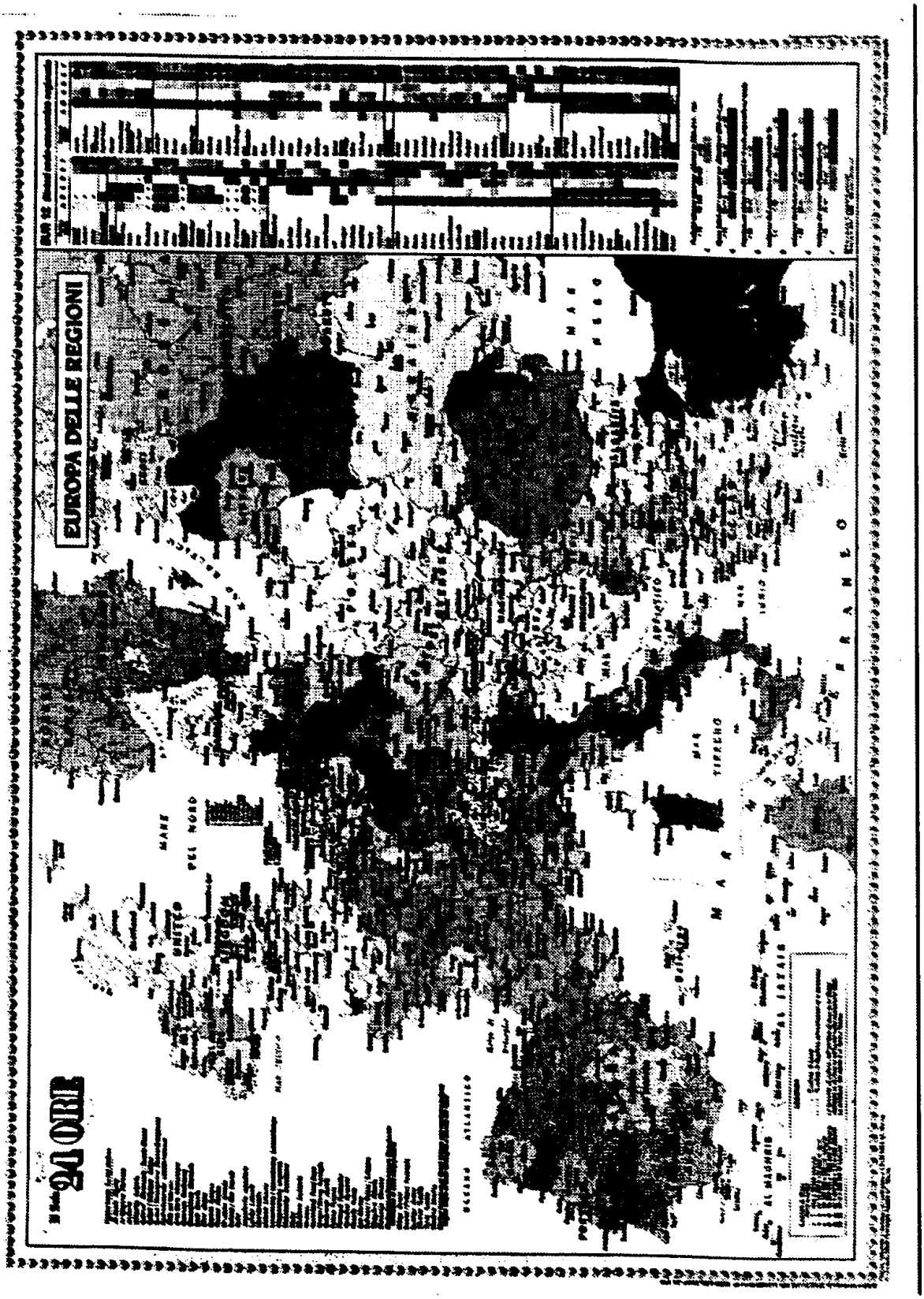
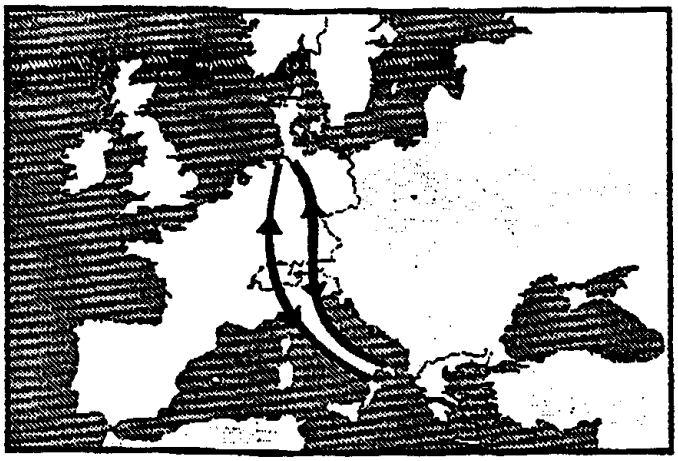
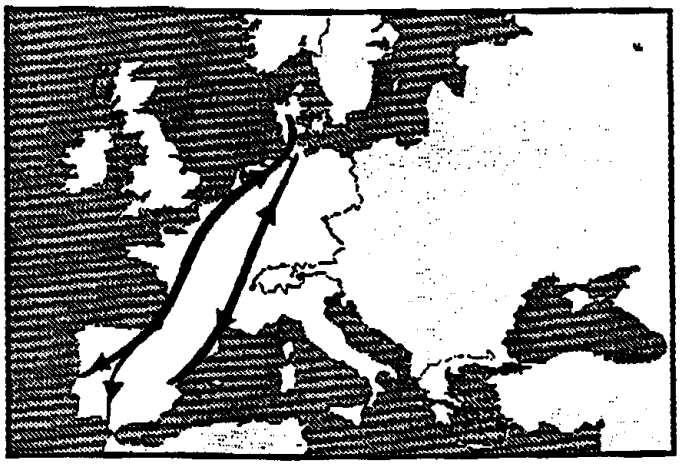


Fig. 3 b

North-South flow



North East-South West flow



North West-South East flow

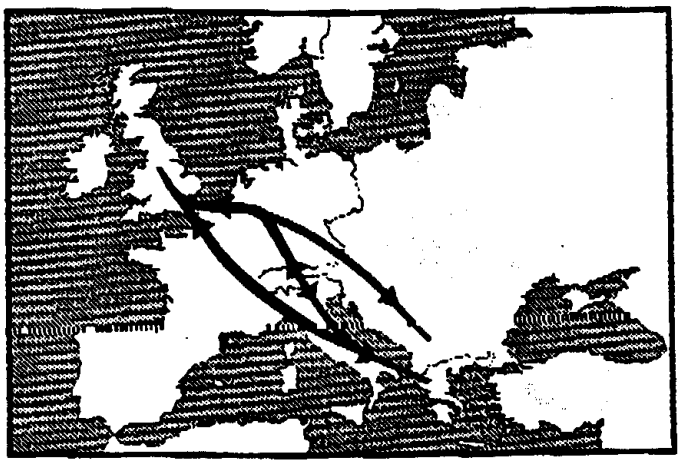


Fig. n. 4 a

East-West flow

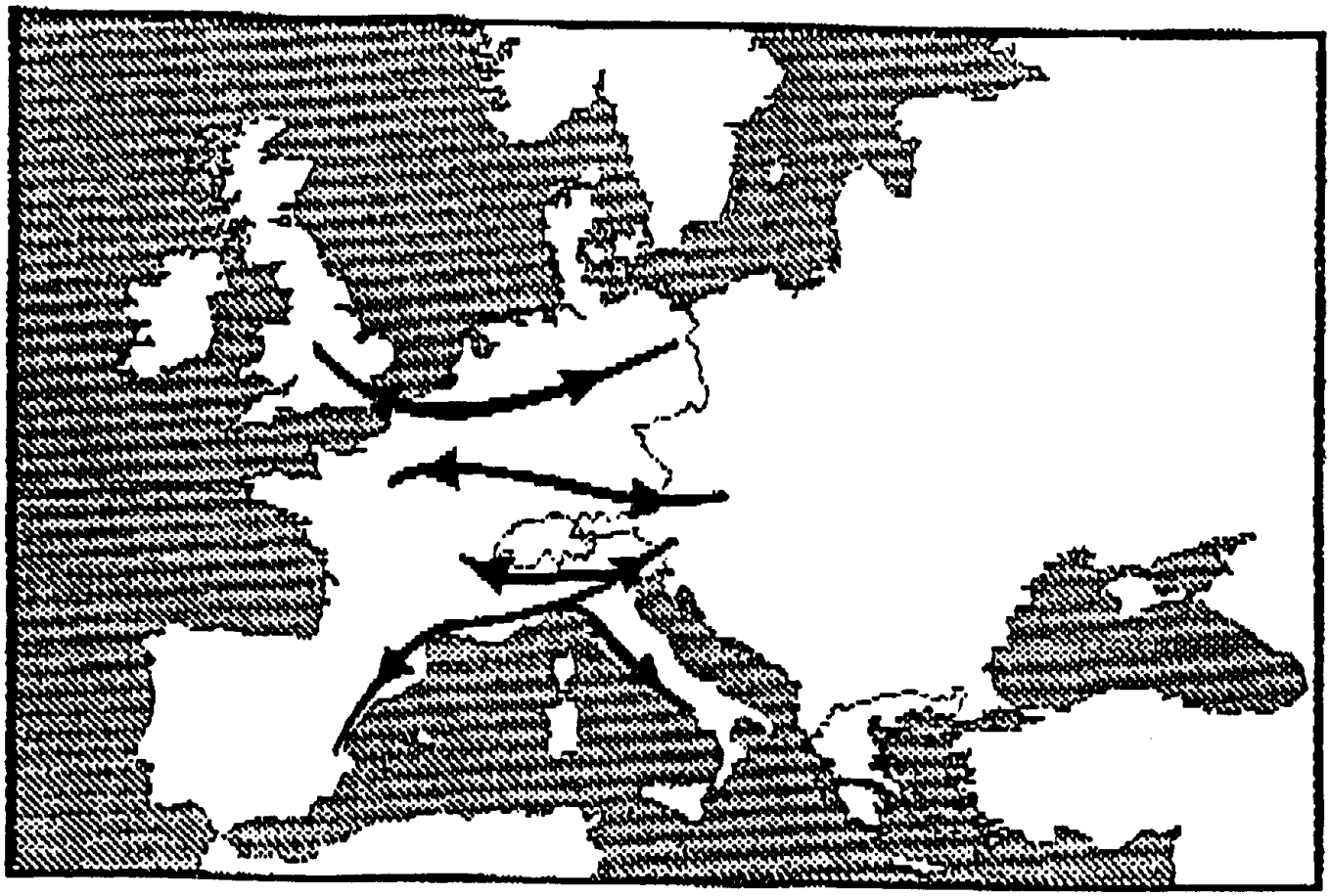


Fig. n. 4 b

Direction regionale
de l'equipement
Provence Alpes
Cote - d'Azur

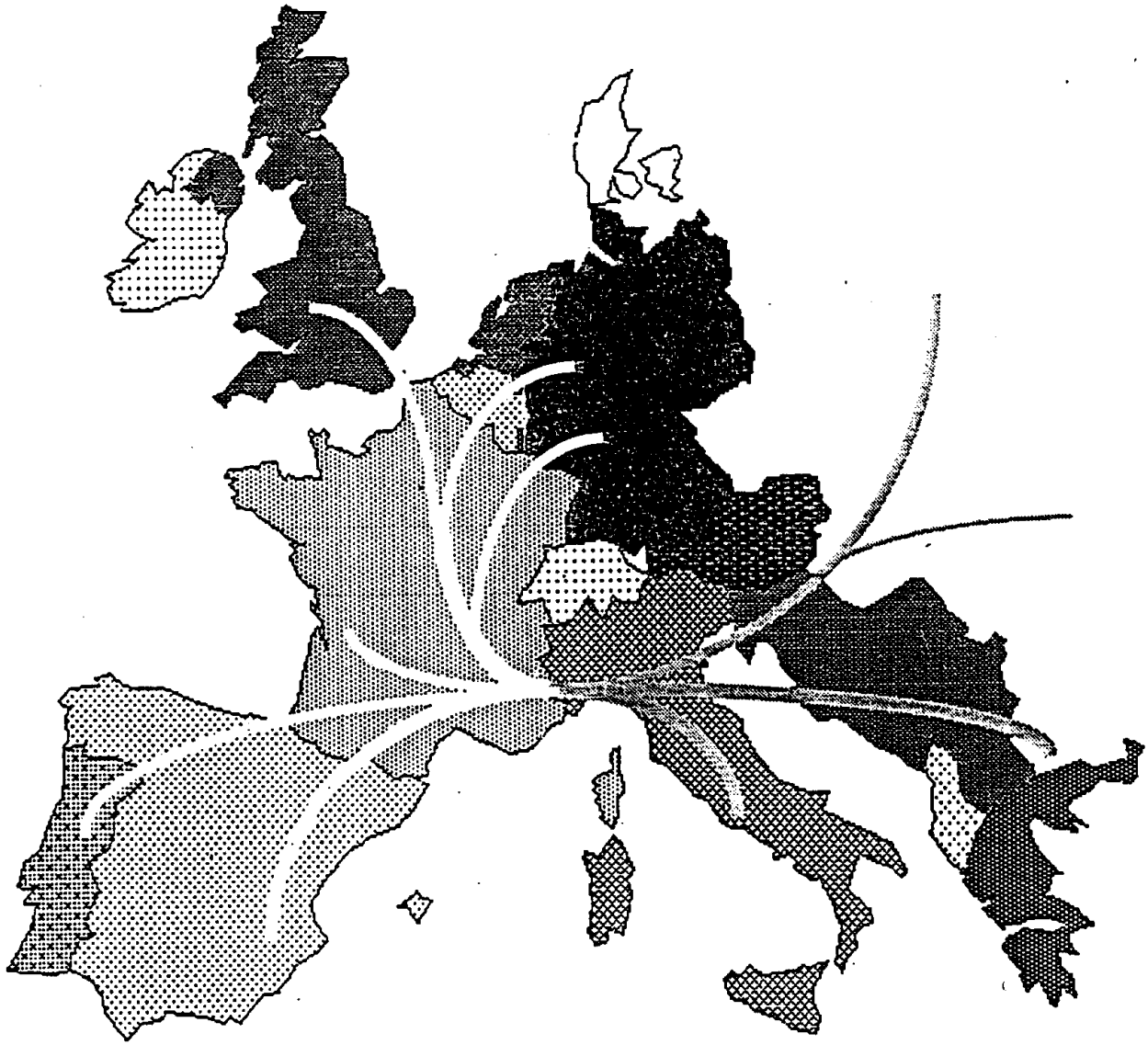


Fig. n.4c

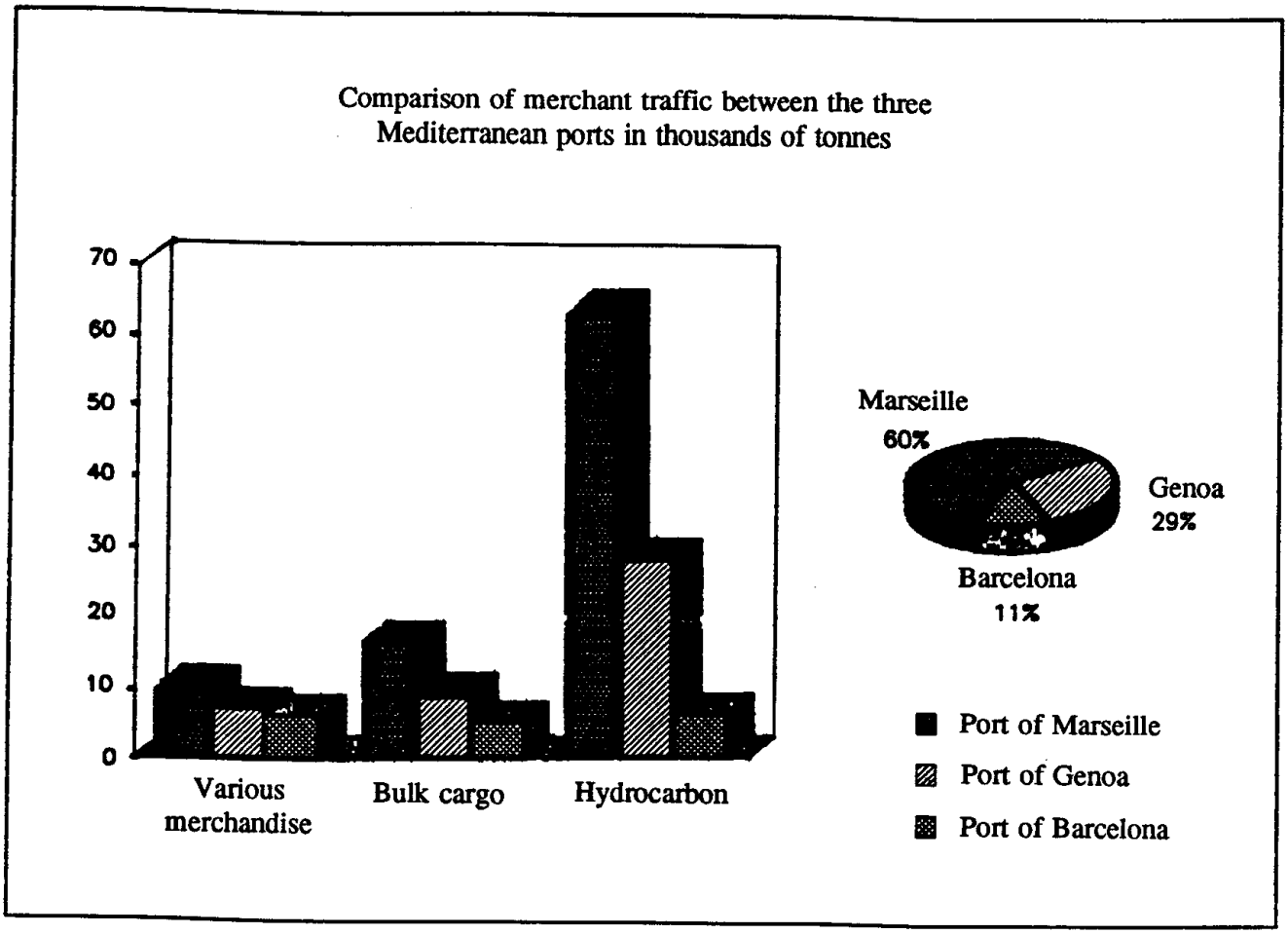
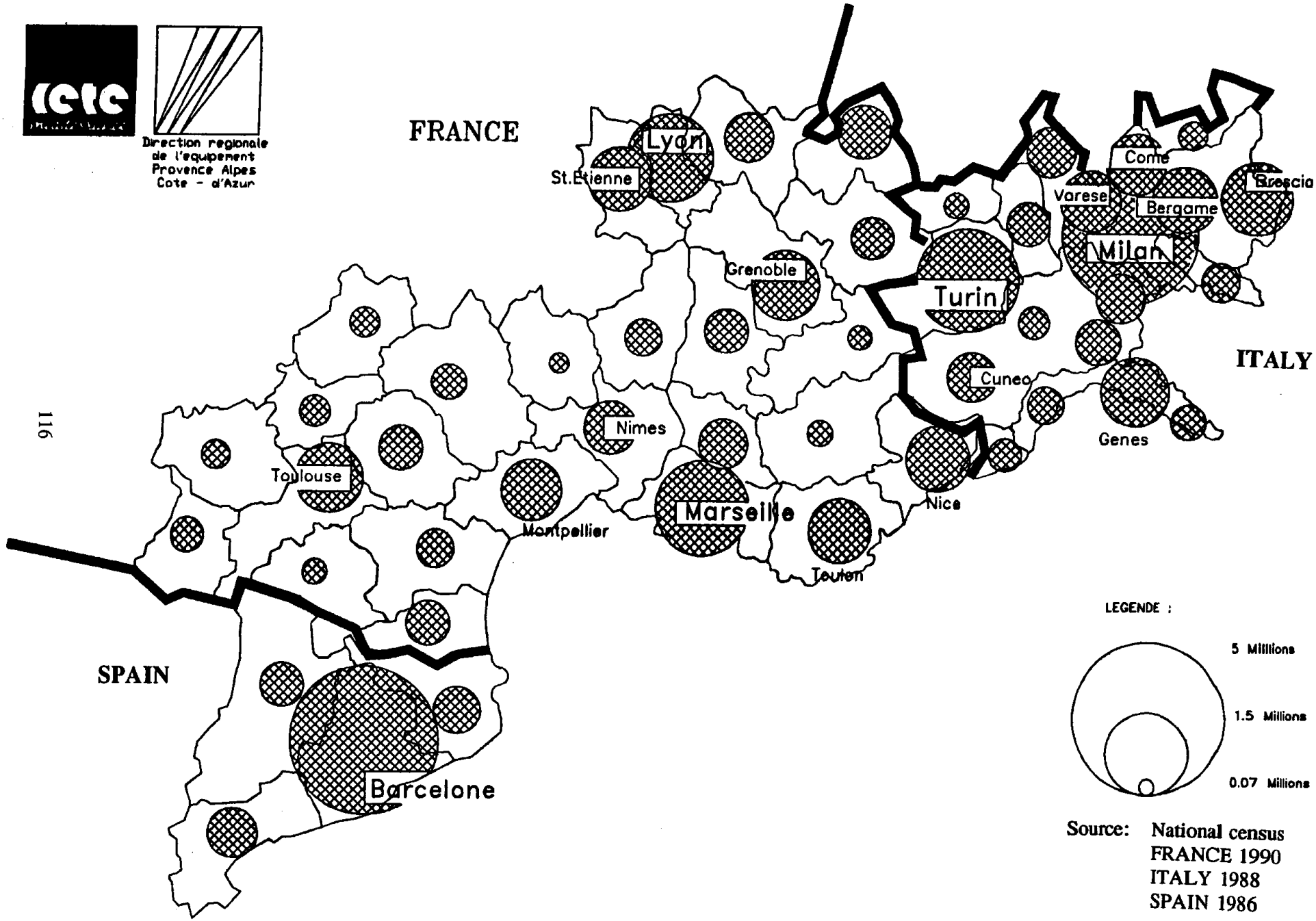


Fig. n.5

Direction regionale de l'equipement Provence Alpes Cote - d'Azur

POPULATION OF DEPARTMENTS AND PROVINCES



Source: National census
FRANCE 1990
ITALY 1988
SPAIN 1986

Fig. n.6

MOVEMENT FLOW (VL+PL) JMA 1990
BORDER CROSSING AT VINTIMILLE (A8+RN7+RN327)

	V.L.							P.L.						
	ROME	ADRIAT	MILAN	GENES	TURIN	CUNEO	TOTAL	ROME	ADRIAT	MILAN	GENES	TURIN	CUNEO	TOTAL
NORTH CENT WEST	0	10	40	530	50	10	640	20	30	30	40	10	10	140
LR SPAIN GIRONDE	60	170	470	460	120	0	1280	140	140	420	120	70	30	920
BDR VAUCLUSE	10	80	80	450	70	100	790	60	70	170	70	30	20	420
VAR ALPES MARITIMES	310	1330	1830	14590	410	510	18980	40	60	120	280	60	40	600
IMPERIA	0	0	0	0	230	480	710	0	0	0	0	0	90	90
TOTAL	380	1590	2420	16030	880	1100	22400	260	300	740	510	170	190	2170

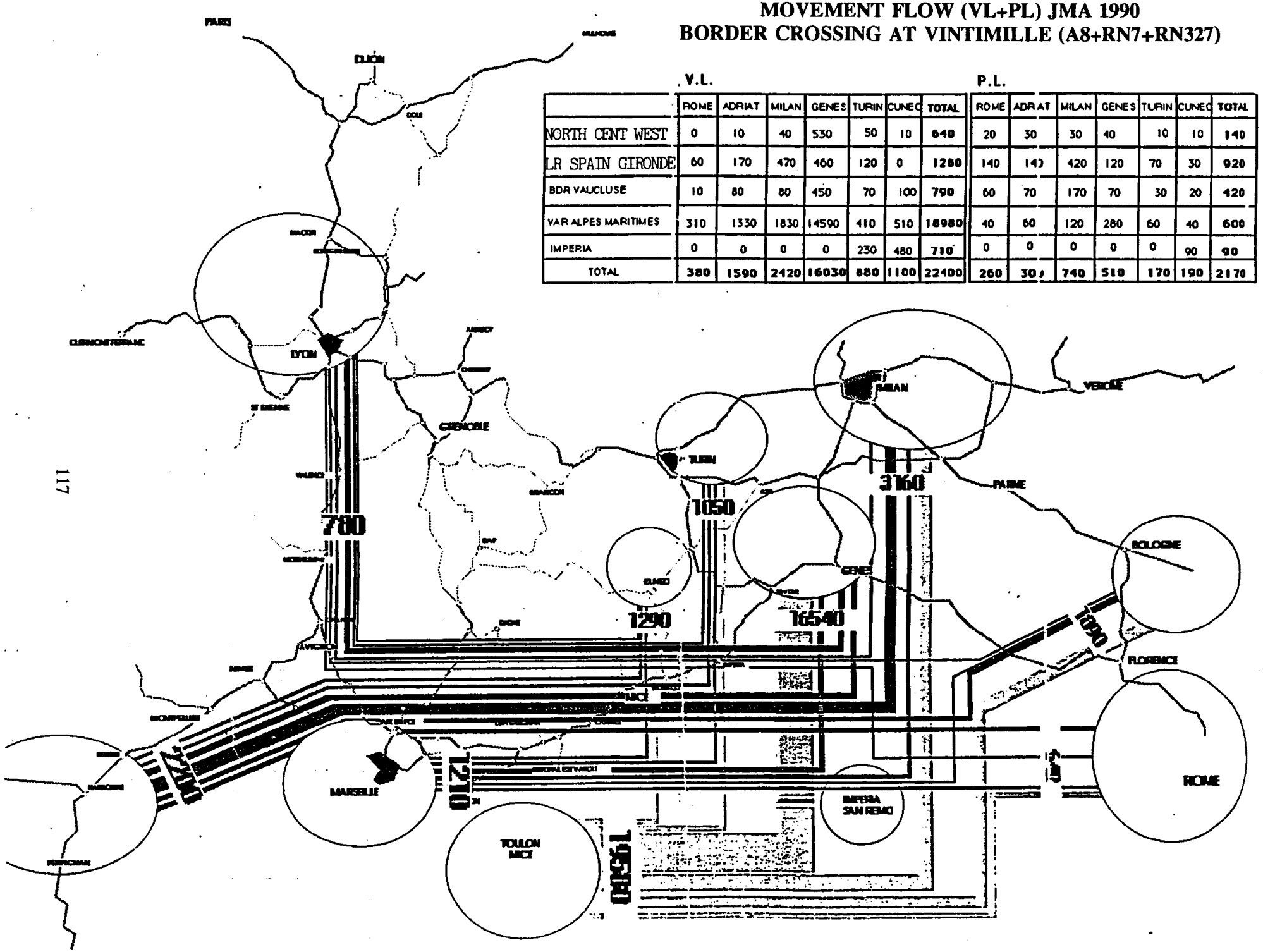


Fig. n. 7

TYPOLOGY OF SECTORS OF ACTIVITY

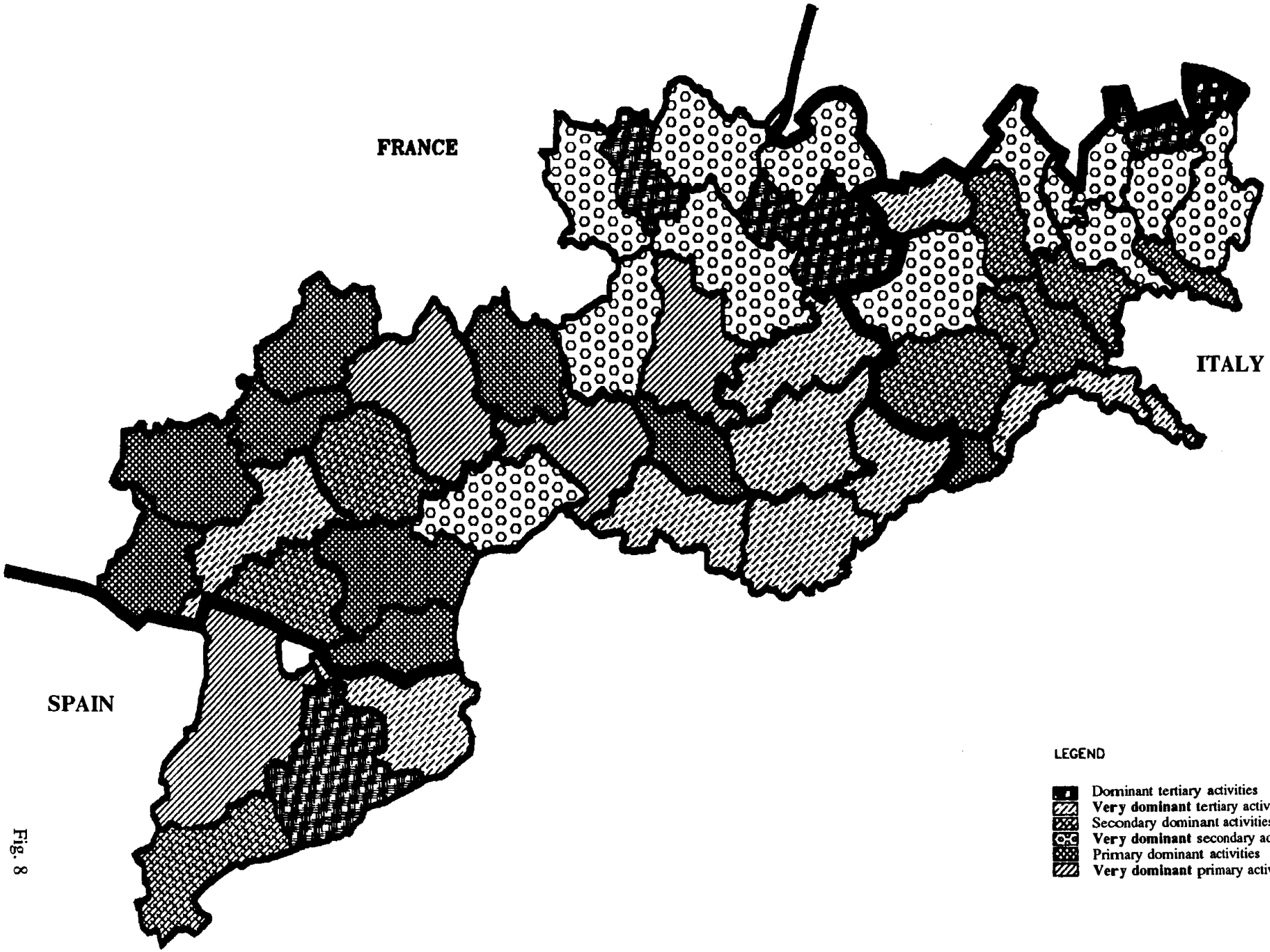


Fig. 8

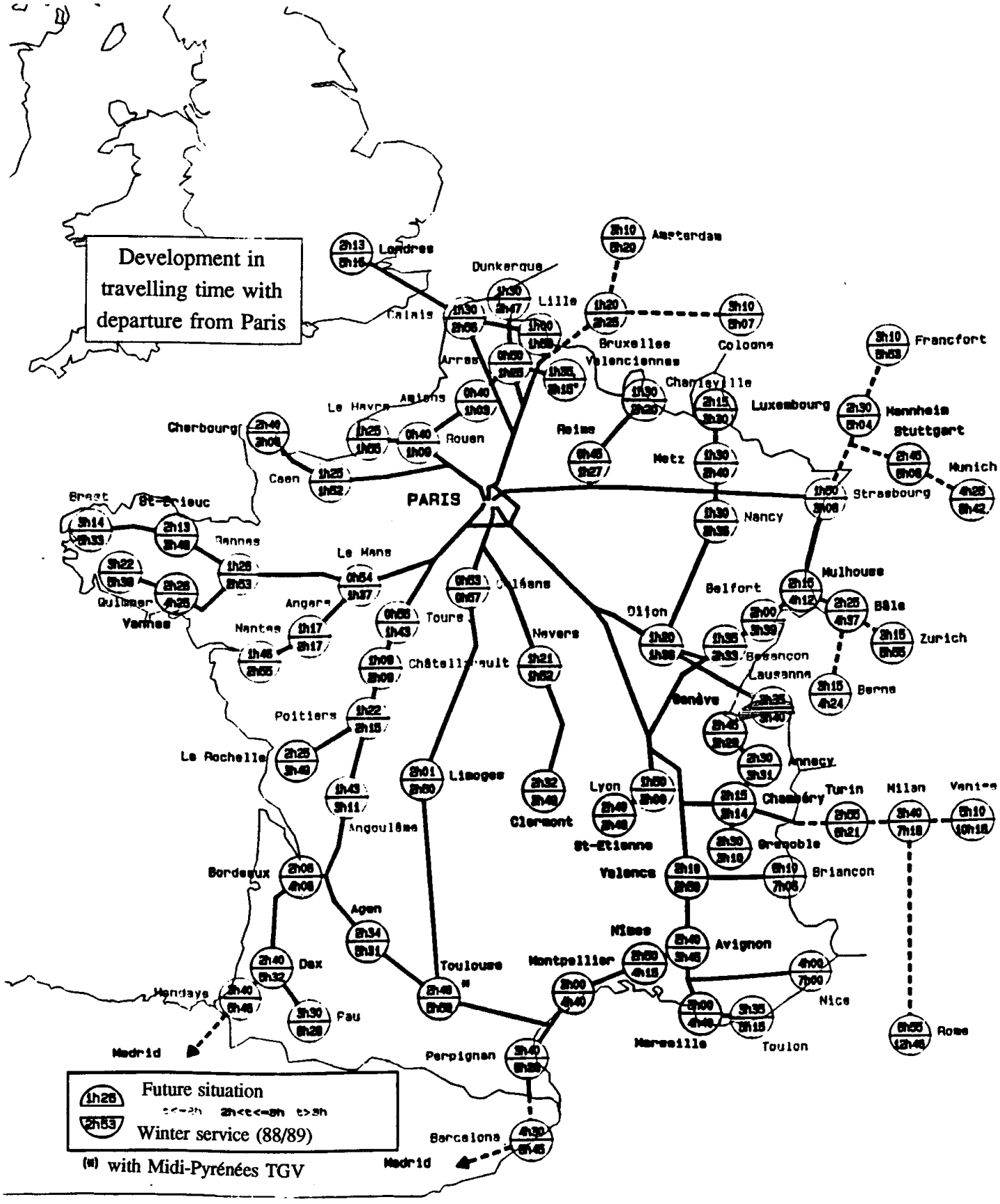

Development in travelling time with departure from Paris
PARIS
Londres
Amsterdam
Dunkerque
Lille
Calais
Bruxelles
Cologne
Francfort
Arras
Valenciennes
Charleville
Luxembourg
Mannheim
Stuttgart
Munich
Amiens
Le Havre
Cherbourg
Rouen
Reims
Metz
Nancy
Strasbourg
Caen
Brest
St-Brieuc
Rennes
Le Mans
Orléans
Belfort
Mulhouse
Bâle
Zurich
Quimper
Vannes
Angers
Nantes
Tours
Nevers
Dijon
Besançon
Lausanne
Berne
Genève
Châtellerault
Poitiers
Annecy
Le Rochelle
Limoges
Clermont
Lyon
Turin
Milan
Venise
Chambéry
St-Etienne
Grenoble
Angoulême
Bordeaux
Valence
Briançon
Agen
Nîmes
Avignon
Dax
Montpellier
Toulouse
Nice
Hendaye
Pau
Marseille
Toulon
Rome
Madrid
Perpignan
Barcelone
Future situation
Winter service (88/89)
with Midi-Pyrénées TGV

Fig. n.9


FRIULI-
VEN. GIULIA
EMILIA
TOSCANA
UMBRIA
PUGLIA
BASILICATA
SARDEGNA
SICILIA
SOCIETE FERROVIAIRE DE L'ETAT
CARTE FERROVIAIRE D'ITALIE

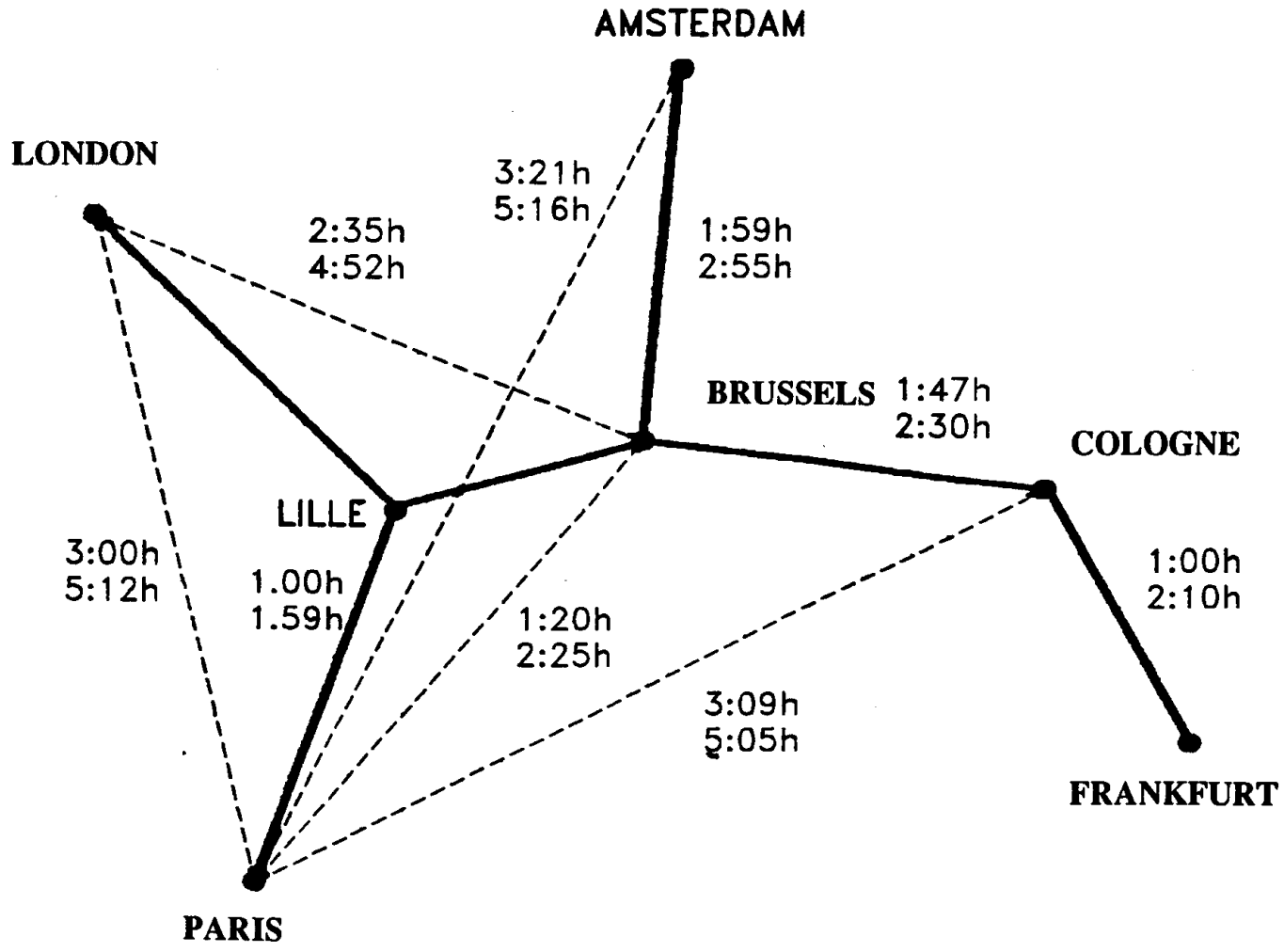
Fig. n.10

Fig. n.11

NORTH EUROPEAN HIGH-SPEED NETWORK

PARIS-LONDON-BRUSSELS-AMSTERDAM-COLOGNE-FRANKFURT

Main travelling times foreseen



---- 3h09: travelling time with completion of project (1998)

—— 5h05: best travelling time at present (1989)

THE EUROPEAN HIGH-SPEED NETWORK

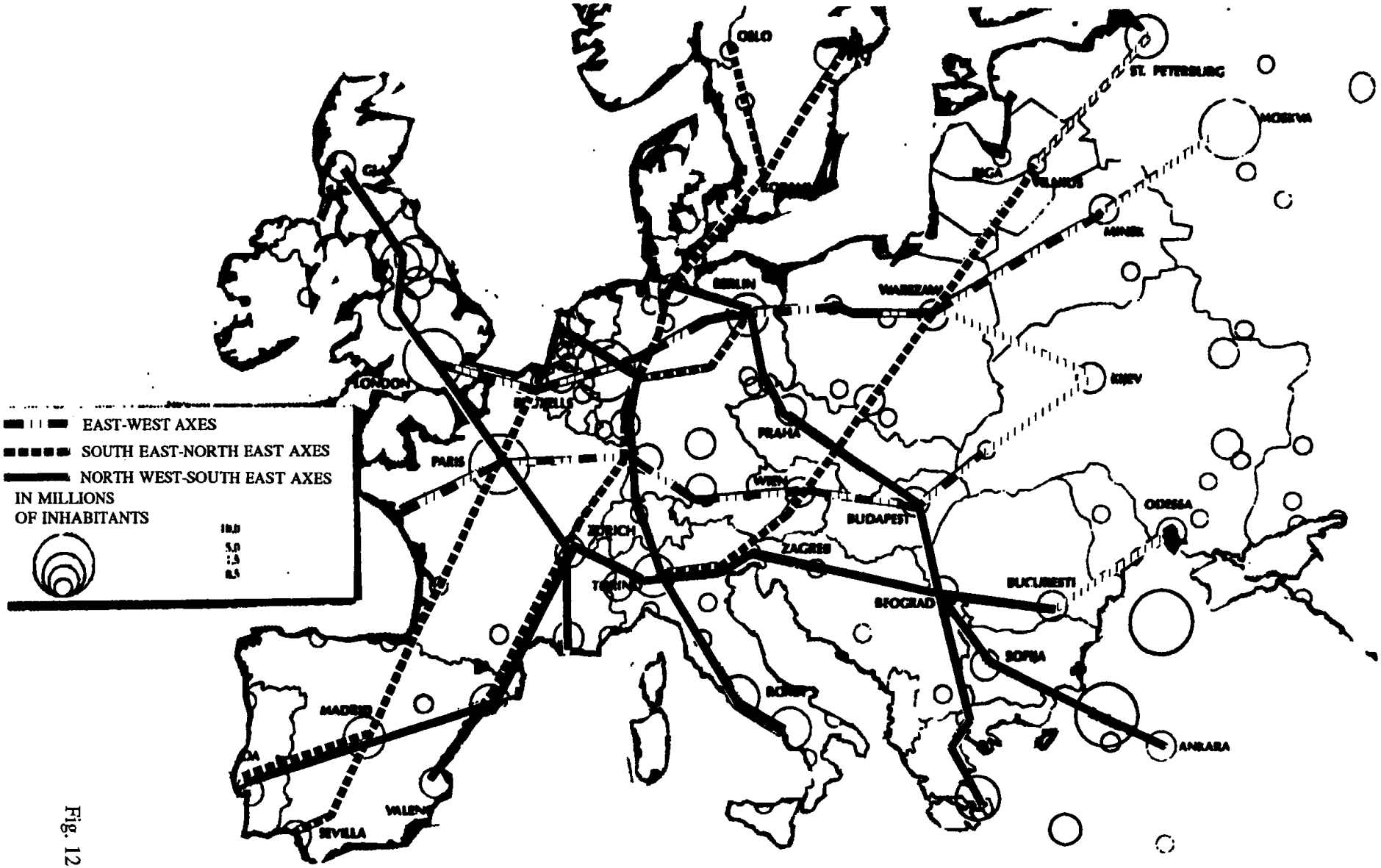


Fig. 12

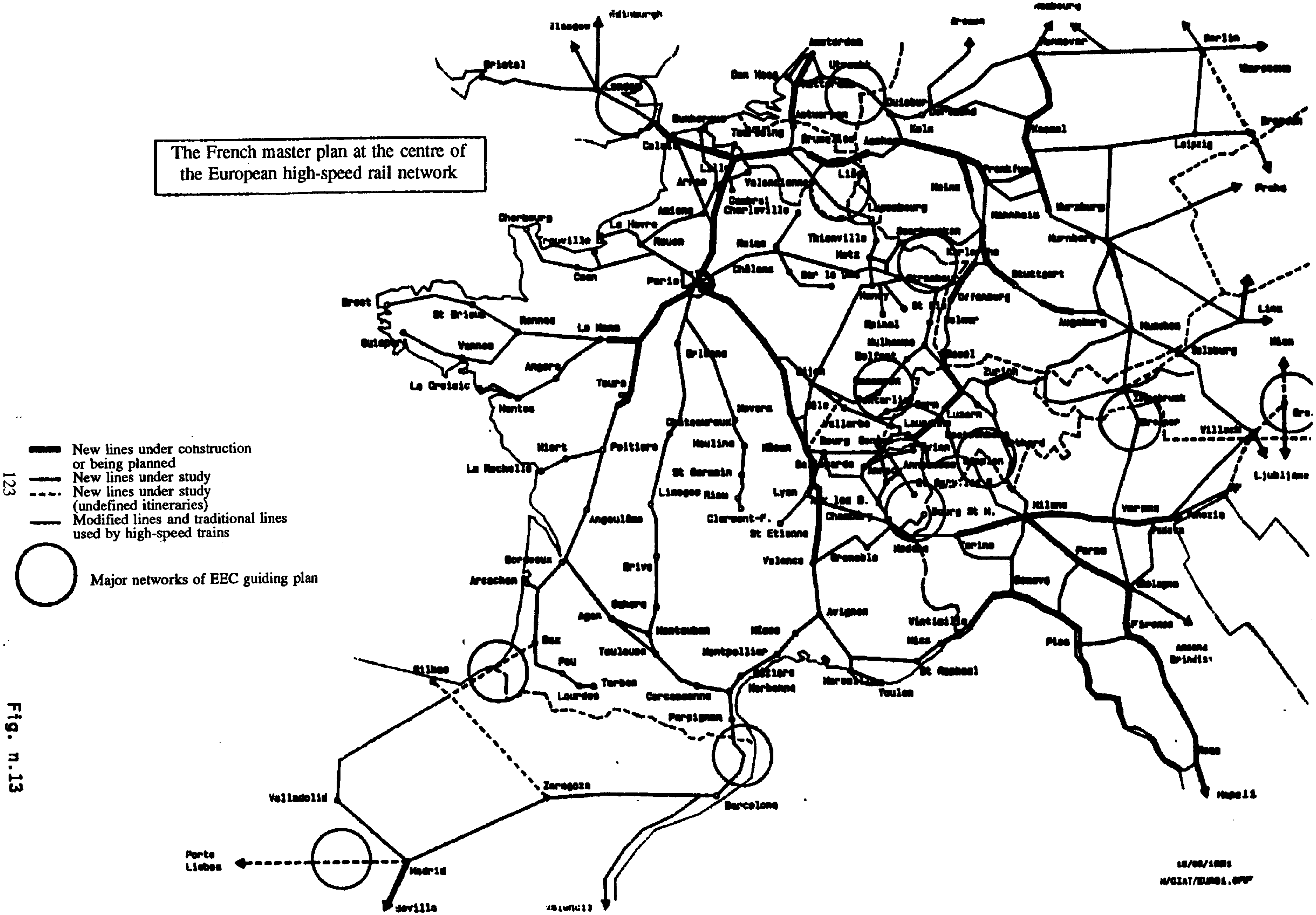

The French master plan at the centre of the European high-speed rail network
New lines under construction or being planned
New lines under study
New lines under study (undefined itineraries)
Modified lines and traditional lines used by high-speed trains
Major networks of EEC guiding plan

Fig. n.13

Appendix 1

MEETING OF 25 JANUARY 1993 BETWEEN MR BIANCO, FRENCH MINISTER FOR EQUIPMENT, HOUSING AND TRANSPORT AND MR MERLONI, ITALIAN MINISTER FOR PUBLIC WORKS

SUMMARY OF CONCLUSIONS

Jean-Louis BIANCO, French Minister for Equipment, Housing and Transport and Francesco MERLONI, Italian Minister for Public Works, met on 25 January 1993 in Paris on the subject of trans-Alpine links between France and Italy. They affirmed that these links were of major importance for the development of human, cultural and commercial exchanges between the two countries, for European construction and for the development of the Alpine regions.

They recalled that such infrastructures were structuring elements for economic and social development policy and land use planning favouring the opening up of enclaves and the maintenance and creation of jobs.

They stressed the quality and fragility of Alpine sites which impose the taking into account of the protection of the human and natural environment, all the more so as the relief tends to concentrate infrastructures and activities in densely populated zones.

They agreed that it was therefore necessary to optimise the use of infrastructures in a comprehensive approach covering the different modes of transport throughout the French and Italian Alps. In the course of their conversations they noted an identity of views on the following points.

Concerning road links between France and Italy in the Northern Alps, the priority is to complete motorway access to the Mont Blanc and Fréjus tunnels. Note was taken of the state of progress and the undertaking to build the Maurienne motorway. The studies carried out on the new high-speed rail link between Lyon and Turin were discussed, and in particular the plans now being completed to favour the development of freight transport by rail. The corresponding reports will be submitted at the end of February, as planned at the Franco-Italian summit of 9 and 10 November 1992.

Having confirmed the priority to be given to the development of rail freight transport, the two governments considered that doubling one of the two existing road-tunnels or creating a new road crossing in the Northern Alps would therefore not be necessary.

Concerning the Southern Alps, the two ministers declared themselves to be in favour of the principle of establishing two new road links between France and Italy: the one between Nice and Cunéo of an international nature, the other between Val de Suse and Val de Durance of an interregional nature. Concerning this latter link, the Italian Minister stated that any decision would remain subject to its inclusion in the Piedmont region transport plan.

The two ministers requested that the studies under way, concerning the different projects which might be envisaged between Nice and Cunéo and between Val de Durance and Val de Suse (technical, socio-economic and environmental studies, including a comparative analysis with other transport modes, legal and financial packages seeking the maximum of self-financing as regards the international route) should be submitted by the end of February. This would also make it possible to decide on the possible short-term reconstruction of the Tende tunnel, whose technical characteristics did not permit satisfactory traffic flow conditions.

In order to ensure overall consistency between the different regional and road projects for the Alps, the two ministers decided to appoint two leading figures (one French, the other Italian) to hold discussions with all the parties concerned. These discussions, which will take place in the course of 1993, should in particular shed light on the value of each of the different projects from the standpoint of land use planning and determine the protective measures required for the human and natural environments. The French Minister for his part had already designated Mr Louis BESSON.

They decided to make a joint approach to the Commission of the European Communities to inform it of the results of this meeting and seek its support.

Appendix 2

NEW LYON-TURIN RAIL LINK

I. Historical background

The idea of a new transalpine rail link between Lyon and Turin goes back to 1987, when the first studies were carried out by the two railway networks concerned, FS and SNCF.

In July 1989, the French and Italian Ministers responsible for transport created a bilateral technical working group to examine passenger and freight rail links between the two countries and propose measures to promote exchanges between them.

In the course of bilateral talks held in Nice in June 1990, the ministers affirmed the value of studying more specifically a new Lyon-Turin link in the context of the realisation of a Southern European high-speed rail network, the Mediterranean appendage of the Northern network.

The interest of this link at European level was stressed by the high-level working group (including representatives of the European Communities, States, railway networks and industrialists) which considered that there were fifteen key links necessary to the realisation of a truly European high-speed rail network.

The ministers again met on 31 January 1991 in Rome and asked that the working group carry out an initial technical and economic feasibility study of the project.

The technical studies were concerned with finding a possible route between Chambéry and Turin and an initial examination of the conditions for building a base tunnel under Mont Ambin. The economic studies were aimed at evaluating the investment costs and estimating receipts based on future traffic flows for both passengers and freight.

The findings of these initial studies, which very clearly confirmed the value of the project, were the subject of a joint SNCF/FS report, which was submitted to the Ministers responsible for transport at the Viterbo Summit held on 17 and 18 October 1991. The ministers decided on this occasion to call for a second study phase to be completed by the end of 1992, concerned in particular with refining the estimates (traffic and construction costs), comparing the base solution (link for use by mixed traffic, high-speed trains and conventional trains) with solutions also integrating combined rail/road combined transport capacities and analysis of the legal and financial packages which could be envisaged with a view to a bilateral agreement.

These studies fit into the framework of the high-speed rail development policy which the French and Italian governments had both decided to pursue in their respective countries.

In France this resulted in the approval by decree in April 1992 of the national high-speed rail link plan which involves 4,700 km of new high-speed lines and in which appear the project for the transalpine Lyon-Turin link, the realisation of the international Chambéry (Montmélian)- Turin section being subject to the conclusion of an agreement between France and Italy.

In Italy, the government has approved a ten-year plan including in particular, as regards rail infrastructures, the realisation of two major high-speed axes:

- a north-south axis: Milan-Florence and Rome-Naples-Battipaglia, which will be based on the Florence-Rome direttissima;

- an east-west axis: Turin-Milan-Venice.

The project for the new transalpine link is precisely that destined to directly connect the French and Italian high-speed networks.

The project for the new transalpine link between Lyon and Turin is also of interest to the neighbouring regions. In Italy, a committee for the promotion of high-speed rail has been constituted in Turin on the joint initiative of the Piedmont region, the city of Turin and the Federation of Industrial Associations of Piedmont. The priority objectives of this committee are to realise the new high-speed line from Turin to Trieste and its connection to the European high-speed network by means of the new transalpine line between Lyon and Turin via Chambéry.

In France, a committee for the high-speed Lyon-Turin-Milan link, a French equivalent of the Italian committee for the promotion of high-speed rail, has also been constituted on the initiative of the Rhône-Alpes region. A protocol of agreement between the two committees was signed in order to promote the realisation of this project through joint actions.

II. Main characteristics of the project

The project for the transalpine high-speed rail link between Lyon and Turin designed to connect the French and Italian high-speed rail networks comprises two sections. The one, between Lyon and Montmélian (south of Chambéry) is purely French, while the other, between Montmélian and Turin is international and concerns not only passenger traffic, but also freight.

1. Lyon-Montmélian section

The realisation of a new line approximately 110 km long between the Rhône-Alpes TGV line under construction to the south of the Satolas station and the existing lines at Montmélian (Savoie) constitutes a project in itself, the first stage in the transalpine link. It in fact brings to the towns of this part of the Alps (Grenoble, Chambéry, Annecy etc) and the Alpine valleys all the advantages of this link as regards their connections with France and Western Europe.

Furthermore, it permits the establishment of high-speed links between France and Italy, using the existing line between Montmélian and Turin over at least 150 km, with time savings of 1 hour 10 minutes between Lyon and Turin and 3 hours 15 minutes between Paris and Rome, bringing the total journey times to 2 hours 50 and 8 hours 25 minutes respectively.

The realisation of this project will double both national and international traffic.

2. Montmélian-Turin section

The studies at present under way allow us to present the following evaluations:

The Montmélian-Turin section consists essentially of a base tunnel 54 km long connecting France (Saint-Jean-de-Maurienne) and Italy (Suse). This is intended to take both freight and passenger traffic.

A twin-tube solution with no service gallery has been adopted, with sections varying from 32 to 52 square metres according to the use hypotheses adopted (traditional freight, piggyback or containers on two levels). The maximum gradient allowed is 12 per thousand and a speed of 220 kph for the high-speed trains and 120 kph for freight traffic. An underground service station is planned at Modane, primarily for safety reasons.

HST access to the base tunnel may be either by means of upgrading existing lines or by building new lines with in particular on the French side a tunnel under the Belledonne massif which would also be used by possible piggyback services.

The economic calculations for the moment have been concerned only with the base hypothesis which includes only the base tunnel, designed for traditional freight only, and minimal upgrading of the access lines, this being the most economically efficient variant. The time saving is then 1 hour 10 minutes and passenger and freight traffic would be expected to grow by 74% and 54% respectively.

III. State of progress of the studies

1. Lyon-Montmélian section

The preliminary studies on the Lyon-Montmélian section of the HST transalpine link between Lyon and Turin, under conditions defined by Circular 91-51 of 2 August 1991 on the establishment of projects for new high-speed rail lines, were the subject of a Ministerial decision of 20 December 1991.

An information file was transmitted in the spring to the state services, elected representatives and associations concerned. Mr BERNARD, Prefect of the Rhône-Alpes region, officially opened the phase of consultation with the elected representatives and socio-professional organisations on 12 October last, on the basis of a more complete consultation file. The responses to this consultation are expected by 15 November 1992.

For information purposes this file is accompanied by a study of the routes running through the Blèvre plain (routes abandoned on the adoption of the Master Plan) and a document analysing the different possibilities for the crossing of the high-speed rail project and the A48 motorway from Ambérieu to Grenoble.

This file contains in particular a detailed environmental study of the different routes envisaged which, completed by the corresponding technical and economic details, serves as a basis for comparing them.

2. Montmélian-Turin section

The second phase of the study relating to the international section of the transalpine link which starts at the Summit of Vitorbo, involves mainly the following:

- infrastructural studies: seismic probes and tests at present under way; geological, hydrographical and topographical studies, aerodynamic studies (tunnels); thermal studies (tunnels);

- market studies concerning:

. passenger traffic, with the constitution of a database to serve as support for new traffic forecasts based on surveys carried out in stations, airports and at frontier crossing points on the roads in May 1992 (off-peak period) and July 1992 (summer peak). The processing of this information, now being completed, will provide a much more detailed and reliable database, notably for road traffic;

. freight traffic, with surveys among the shippers in the different countries concerned and an analysis of potential traffic flows from the North Sea and Mediterranean ports;

- legal and financial studies calling in particular on the expertise of a grouping of major French and Italian banks;

- studies of rolling stock, with a view to defining trains perfectly compatible with the installations in service, notably on existing lines (electrification and signalling systems) in the two countries.

In addition, it has turned out to be essential to make the A43 motorway project, now on the point of being declared to be of public utility, compatible with the projected new railway line in view of the severe constraints imposed by the restricted area of the Maurienne valley site. The SNCF has therefore embarked upon the necessary studies in liaison with the motorway concessionaire.

It nevertheless appeared desirable to continue these studies in an official context, which is why there was a Ministerial decision of 25 September 1992 to undertake "preliminary studies" on the Montmélian - Saint-Jean-de-Maurienne (western end of the base tunnel) section of the Lyon-Turin link.

IV. Continuation of the studies

1. Lyon-Montmélian section

On completion of the consultation phase, the file will be submitted to the Ministry of Transport by mid-December 1992. The preliminary studies by the SNCF will also be submitted so that a choice of route can be made on this basis.

2. Montmélian-Turin section

The studies under way will be completed early in 1993 with the submission to the Ministries responsible for transport of a complete feasibility report drawn up by the networks.

PLANNING OF COMMUNICATION NETWORKS IN CENTRAL EUROPE IN THE NEW POLITICAL AND ECONOMIC CONTEXT: PROBLEMS OF INFRASTRUCTURE-PLANNING IN CENTRAL EUROPE WITHIN THE EUROPEAN TRANSPORT NETWORK

Prof. Wojciech SUCHORZEWSKI
University of Technology
Warsaw

INTRODUCTION

This report gives a brief description of the present situation in the transport systems and infrastructure in Poland, changes in transport demand and policies and plans to modernise and develop transport infrastructure. While facts and figures used in this paper regard Poland, it seems that most observations reflect the situation in other countries of central and eastern Europe (CEE) which belonged to Comecon. The opinions and views expressed in the report are those of the author.

I. THE PRESENT STATE AS THE LEGACY OF AN OLD POLITICAL SYSTEM

Transport policies in CEE countries were to a very large extent determined by the structure of demand which was a consequence of economic and spatial policies. Urbanisation[1] and industrialisation, nationalisation of the means of production, priority given to the heavy industry and energy sectors at the expense of consumer goods and services, excessive concentration and specialisation of production, combined with general failure of central planning, ineffective management and distribution systems as well as lack of market mechanism led to a very high demand for freight transport.[2] International freight transport was mostly between the Comecon countries and international passenger traffic was limited by political constraints. In addition, the development of the transport system was strongly affected by some pathological features of planning and decision-making in all sectors of economy. It is well known that resource allocation was determined by planning targets and projects selected for implementation were not selected and designed on the basis of economic and financial criteria. Generally, engineering inputs were affecting projects, which often led to over-design of technical infrastructure and neglected operation and management.

In all countries of central and eastern Europe emphasis was on developing the **railway transport**. For example, in 1980 in Poland, 68 per cent of ton kilometres and 47 per cent of passenger kilometres were served by rail. The density of railway lines (7.7 km/100 sq.km) and the share of electrified lines (in 1991, 47 per cent of the total length of the network) were among highest in the world. However, in spite of devoting a considerable share of capital to the railway system, its quality is not satisfactory. Of the basic network (14.1 thousand km), as much as 25 per cent of the length of tracks is considered to be in unsatisfactory technical condition, the traffic control system is outdated[3] and the quality of rolling stock is poor. Low quality of material assets, in combination with inadequate operational efficiency, has meant that the quality of service and economic efficiency are very low. Generally, railways are not competitive in terms of speed,[4] costs and convenience.

Until the late fifties, **road transport** was considered of secondary importance and private motorisation as undesirable. Later, government policy changed and, regardless of a low income level, the number of private automobiles was rapidly increasing. The absolute values of car ownership rates are still much lower than in western Europe.[5] If motorisation in large cities is considered, the gap is not so great,[6] what clearly cannot be regarded as sensible and desirable.

The overall density of the **rural road network** can be considered as adequate; however, the quality of roads (both in terms of design standards and pavement quality) is generally low. There are short sections of

motorway (in Poland, the total length is 257 km) and most roads, including international roads, do not have access control and are used by mixed traffic. Many sections of main international and national roads go through built-up areas, and some through city and town centres. Congestion is appearing in urban areas and on some rural sections in heavy demand corridors. International traffic additionally suffers because of the inadequate number and capacity of border crossing points. The situation of road traffic safety is dramatic. The number and severity of road traffic accidents are much higher than in Western Europe.

In the past, road maintenance was neglected because priority was given to the upgrading and development of the network. At present, road conditions are deteriorating fast because of a very limited budget allocated to the road sector.

Historically, **sea transport** played an important role in serving international freight transport. In 1990 in Poland, about one quarter of total imports and two-fifths of exports were served by the Polish sea ports. Most port infrastructure, facilities and equipment were developed mainly for serving bulky cargoes. Capacities to serve general cargo and containers are limited. In many instances, connections with road transport (except railways) are inadequate. Some ports in the Baltic republics are not prepared to serve car/truck ferries.

The role of **inland water transport** in most countries is minor. In 1990, it served from 0.3 (Poland) to approximately 5 per cent of all ton-kilometres (in Hungary and Bulgaria).

Air transport is used mostly for international traffic. The number of airports (both international and domestic) is considered to be more than adequate; however, airports and air traffic control systems are outdated and require upgrading. Until very recently, the aircraft fleet in practically all CEE countries was composed mostly of Soviet-built planes.

In the old regime of a centrally-planned economy, freight transport was not organised as a chain of services. Each mode was organised as a public monopoly. The user was responsible for loading-unloading operations. Many enterprises possessed their own means of transport and did not use public transport services. Clearly, all this did not give encouragement to use distributors and **inter-modal, combined transport** was not very developed.

Urban transport policy in Poland has for decades stressed the leading role of public transport. Fares were kept low, and heavy subsidies were accepted. Priority was given to serving commuter traffic, since production was considered the main objective. Generally, all cities were served by extensive, multi-modal mass transport systems. While the quality of service was not very high, the density of the network and frequency of service were generally good. Clearly, this policy, combined with a low car ownership ratio, meant that, for a long time, a very high proportion of journeys (85-95 per cent) were made by public transport.

In addition, ambitious comprehensive land use transportation plans provided for urban development patterns in which single function areas (residential, industrial, etc.) were to be linked with rail transport (metros, light railways, rapid tramways, etc.). Unfortunately, in practice, because of the lack of resources, plans have been implemented only to a minor degree. The maintenance of pavements, bridges and tramway tracks was neglected. At the same time, little attention was paid to traffic management. The priority of public transport and traffic constraints measures, such as parking pricing, were rarely used.

It is visible from the above characteristics, that the main features of transport in CEE countries can be attributed to some features of the old political system. Since the second world war, priority was given to large-scale infrastructure projects over the upgrading, maintenance and operation of existing facilities. Emphasis was placed on quantitative development of technical infrastructure rather than on improvement of its quality. Many ambitious projects were initiated, but the underestimation of construction and operating costs, combined with over-optimistic economic forecasts often led to slow project implementation, the freezing of financial resources, and overall inefficiency.

In many cases, political factors, such as short-term political objectives, for example looking for spectacular projects, affected decisions.

This general picture of the transport situation in CEE countries has to be supplemented by stressing the disparities between countries and groups of countries. The first area, covering the eastern lands of Germany, the Czech Republic, Hungary, Poland, Slovakia, and perhaps Bulgaria and Romania, has transport systems (including infrastructure) which were planned with the European transport network in view. However, because of the unsatisfactory level of planning implementation, low standards of infrastructure and inefficient operation, these systems do not comply with the requirements formulated in the international transport agreements such as the European Agreement on Main International Traffic Arteries (AGR) and the European Agreement on Main International Railways Lines (AGC). The second area, composed of the Baltic Republics (Estonia, Latvia and Lithuania), Belarus, Ukraine and, of course, Russia,

has transport systems with much lower density and a very limited number of connections with the system of European networks defined by the AGC and AGR agreements. Different gauges of railways make these disparities even greater.

II. CHANGING TRANSPORT DEMAND

In the last years, the gross domestic product (GDP) of the economies in transition has declined, but it is envisaged that, after a period of stabilisation, it will start growing again. According to earlier forecasts, Czechoslovakia and Hungary were leading in the fight against recession, with Poland following. 1992 results led to different conclusions, namely, that Poland has passed the critical point as the first country in the region,[7] and a considerable increase of the GDP per capita will probably occur between 1993 and 2000. Forecasts for other countries are less optimistic, and for some of them it will be difficult to obtain the production level of the mid-eighties.

A number of transport demand predictions have been prepared for countries, means of transport and time periods.[8] Different economic scenarios have been taken as a starting point for these predictions. Most western European forecasts predict that annual growth rates until the year 2000 will be between 2 and 3 per cent. More optimistic forecasts assume much faster increases.[9] In any case, these projections of economic growth mean that up to the end of the century the gap between the income levels in Poland (as well as in other CEE countries) and the countries of western Europe will not be much reduced.

The political and economic reforms in CEE countries have already caused great changes in volumes and directions of passenger and goods transport. Some of these changes have already been observed, such as shift of demand from the need to transport products of heavy industries to lighter consumer goods, from demand for low quality services to high quality services, and from international traffic among the former Comecon countries to traffic between CEE countries and EC/EFTA countries. As one of the most important results, a shift in the modal split from railways to road transport is already taking place. There is a very high probability that these trends will continue.

In a forecast prepared in 1991,[10] it was assumed that, in the period 1990 to 2020, the number of automobiles in Poland will grow from 5.26 million in 1990 to 10.7 million in 2010 and 13.5 million in 2020. In the same period, the number of trucks will grow from 1.04 to 1.42 million and 1.66 million, respectively. Subsequently, it was predicted that, in the period 1990-2020, as a combined effect of the growth of the population, motorisation and mobility, traffic volumes on the national road network will be increasing at the rate of 4.5-5.5% per year. In the most recent forecasts, prepared in the framework of feasibility studies of selected roads, even faster growth of road traffic was predicted.

Forecasting of international traffic is even more difficult than national and local traffic, because the extent of changes is much greater. This can be seen from the analysis of trends in international traffic crossing Polish borders. In the last decade, the total number of passengers crossing all borders dropped from 31.5 million in 1980 to 19.2 million in 1985 and then increased to 79.3 million in 1990 and 113.9 million in 1991. In 1991, 87.4% of border-crossing passengers were travelling by road (in buses and private vehicles). Railways served 10.6 per cent of passenger traffic.

Further growth will, to a very large extent, depend on the pace and direction of economic and political changes in the former Soviet Union. Sooner or later, passenger traffic and goods transport between countries of the CIS, Baltic republics and Poland, Slovakia, Hungary, etc., as well as traffic through Poland, Slovakia, Hungary and the Czech Republic to western European countries will grow.

The rate of this growth can be considerable. Forecasts for Poland assume that the growth factors for international road traffic crossing Polish borders for the period 1990-2020 will be between 3 (minimum scenario) and 10-12 (maximum scenario). It is envisaged that the growth will be faster for the eastern and western borders than for the northern and southern borders.

In summary, it can be expected that traffic between East and West will be growing faster than between CEE countries. With regard to traffic directions, it is generally agreed that East-West flows will be growing faster than North-South flows; this can be explained by the distribution of the population and economic activities. However, it is also possible that, because of overloading of the North-South corridors in Germany, some North-South flows (from Scandinavia to southern Europe) can be rerouted to road/rail corridors in Poland which have some unused capacity. Finally, the opening of the borders of the former Soviet Union can create entirely new potentials for transcontinental inland transport connections between the Far East and western Europe.

III. NEED TO REFORMULATE TRANSPORT POLICY

As it was stressed earlier, during the old regime, transport was developed with an emphasis on carrying bulky goods between the Comecon countries by

railways and sea. Extensive networks of infrastructure were developed, but systems were handicapped by inefficient organisation, outmoded technology and poor maintenance of infrastructure.

In the new situation, there is a need for a new transport policy, which should take into account changes in transport demand, new requirements concerning the quality of transport services stemming from the growing co-operation with west European countries and, finally, limited resources. This last point deserves discussion, because too often decision-makers and professionals formulate objectives which are simply not attainable by countries with income levels per capita many times lower than, for example, in EC countries. With competing needs of various sectors and scarce resources, it is very likely that CEE countries for a long time will not be able to reach the same, or similar, standards in transportation as high-income countries. Consequently, the question arises which standards and/or parts of transport systems should have priorities. Formulation of a **realistic** programme of progressive adoption of the international (EC) quality, technical, safety and environmental standards seems to be the first and especially difficult task. And it is very likely that some of the standards, for decades, will have to be considered as inappropriate for some countries (or group of countries).

The second group of policy decisions to be made by the central and local governments is how to allocate scarce resources between:

a. competing means of transport;

b. maintenance, renovation (upgrading) of existing infrastructure and new capital investment;

c. investing in the upgrading/development of international transport corridors and the domestic networks and facilities;

d. short-term measures and the long-term programmes and projects.

The most important, however, are decisions concerning the shift from the **hardware approach** (more infrastructure) to the **software approach** (better maintenance and operation). Although there are some signs of this shift, emphasis is still on investment. This is visible, for example, in the most recent statements on investment policies in Poland (see item IV) which assign a high priority to projects aiming at upgrading and developing infrastructure.

IV. RENOVATION AND DEVELOPMENT OF TRANSPORT INFRASTRUCTURE

Transport infrastructure in Poland

According to the currently declared transport policy in Poland, one of the main objectives is to upgrade the transport systems and integrate them with the systems of western Europe through:

- adjusting 4.9 thousand kilometres of railway lines of major international importance to requirements of the AGC Agreement and the European Agreement on Important International Combined Transport Lines and Related Installations (AGTC); line E20 (Berlin-Warsaw) has been selected as a priority for the period 1992-2005; the cost of modernisation was estimated at approximately 2.3 billion USD, 730 million USD of which would be spent on infrastructure;

- upgrading and expanding road networks according to the AGR Agreement, including the Trans-European Motorway (TEM) project; plans provide for the development of motorways (2500 km) and express roads (3500 km); three motorways: A2 (Berlin-Warsaw-Terespol-Moscow), A4 (Berlin and Dresden-Wroclaw-Katowice-Cracow-Przemysl-Lvov) and A1 (Gdansk-Lodz-Katowice-Gorzyce), with a total length of 1640 km, are considered priorities. The cost of construction is estimated at close to 3 billion USD.

- adjusting the Polish Baltic ports to changed demand; while these ports have some excess capacity, they are not well prepared for the present and future directions and types of cargo (liquid fuel, containers, railways, car and road transport vehicles);

- development of facilities for combined transport aiming at increasing its share to 12-15 per cent of freight traffic (i.e. 30-40 million tons);

- upgrading and development of border crossing facilities, communication and information systems, etc.

As mentioned earlier, road transport is growing in a very dynamic way, capturing a significant part of passenger and freight traffic from railways. The declared government policy aims at the creation of equal conditions for these two competing modes through fiscal measures (for example, the user pays for construction and maintenance of infrastructure). In practice, this means that the development of roads has lower priority.

As it was shown, inland water transport in Poland plays a very small role in goods transport. Unfortunately, this can be changed only at the very high cost of considerable infrastructure development. Given the present state of economic difficulties this does not seem possible in the near future, except some short links such as between Szczecin and Berlin. Nevertheless, the potential of inland waterways in the long term is kept in mind. If, in Germany, the east-west links towards the Polish borders are extended, attractive waterway connections can be established with the ports of Szczecin, Silesia, and Warsaw. An old project of constructing canals linking the Elbe, Odra and Danube, is still being considered. However, because of the enormous scale and costs of this project, it is very unlikely that it can be implemented in a visible future.

International co-operation in transport development

In the past, co-operation between countries of eastern and western Europe in developing integrated transport systems was very limited. Projects such as the Trans-European Motorway (TEM) and Trans-European Railways (TER) were among the few exceptions. In the transition period, several new initiatives were undertaken, aiming at reducing disparities between transport systems in different countries and regions and stimulating international co-operation. Some of them are briefly mentioned in the following paragraphs.

In the last years, the TEM and TER programmes have been expanded. New road sections have been added, including East-West links connecting the former Soviet republics with western Europe through Poland and the Czech and Slovak Republics. This has substantially changed the character of the projects which originally aimed at improving North-South connections.

The Central European Initiative (former Pentagonale) - composed of Austria, Croatia, the Czech Republic, Hungary, Italy, Poland and Slovenia - established a Transport Working Group, which has recently determined a list of priority transport infrastructure projects. Most of them are railway and motorway projects, and many are consistent with other proposals, such as TEM and TER.

In March 1992, the First Baltic Sea Conference of Ministers of Transport[11] agreed to enhance international co-operation aiming to develop a common vision of the transport system and infrastructure in the Baltic Sea region; *inter alia*, a working group was established to prepare a programme of action in the field of transport infrastructure.

In the framework of this work, some new ideas are considered, such as TEM-Scandinavia.[12]

A group of Baltic countries, composed of Estonia, Finland, Latvia, Lithuania, Poland and Russia, is working on **Via Baltica**, a project of efficient road connections between the Baltic republics and western Europe via Poland.

The most recent project of radical improvement of the railway passenger service between Tallin-Riga-Vilnius-Warsaw-Berlin (1832 km) is based on improved operation. Through the optimum use of existing infrastructure and improving border crossing operations, it is possible to reduce travel time between Tallin and Berlin from the present 40 hours to 29 hours. This example shows that the existing systems offer excess capacity and capabilities which can be immediately used without heavy investment.

In addition to projects which can be called trans-European, at least one concept of a transcontinental character should be mentioned, namely the Euro-Asiatic rail corridor.[13]

The AGC, AGR and AGTC agreements as well as projects such as TER, TEM and Via Baltica, demonstrate that the main directions of the development of a trans-European network are generally determined also for at least some of CEE countries. However, the implementation of programmes and projects in these countries requires financial means which are much greater than those available in these countries. Consequently, financing transport development programmes constitutes the most difficult problem.

Financing

The financial resources needed to modernise and develop only rail and road transport infrastructure in CEE countries (without most countries of the former Soviet Union) were estimated by the ECE in excess of 120 billion USD.[14] Since this amount will not be available in the foreseeable future, difficult choices will have to be made, first of all between improving domestic and international transport. Contrary to high-income European countries, in CEE countries domestic transport is often underdeveloped. Consequently, in many cases, the improvement of this transport is likely to be of higher economic priority than the development of international networks.

Taking into account trends in GDP, it is obvious that conventional means of financing will not be sufficient to meet even the most moderate investment needs in the transport sector. While considerable lending opportunities were created by international finance organisations, such as EBRD and IBRD, loans usually require governmental guarantees which, in countries with responsible financial policies, are not easy to obtain. For this reason

all possible ways of mobilising financial resources for the development of domestic and international transport are examined by the governments.

Among various options of non-conventional ways to finance capital investment, private provision of infrastructure using concession financing such as BOT (Build, Operate, Transfer) is considered most promising. Hungary is the most advanced country in practical application of this scheme to implement the toll motorway development programme.[15] In Poland, decisions have just been made to implement the programme for motorways development using the same financing mechanism.

The recent decisions of the European Community,[16] opening up new forms of supportive action, created new, very promising opportunities for promoting investment projects in transport infrastructure. Not only lending facilities have been increased, but also new mechanisms of assistance are considered such as:

a. raising the normal ceiling on the extent of loans from 50 per cent to 75 per cent and the combined (loans and grants) ceiling from 70 per cent to 90 per cent;

b. enabling the use of grants for paying interest and providing guarantees for loans from various sources;

c. parallel financing.

V. CONCLUDING REMARKS

Outmoded and inefficient transport may undermine opportunities created by the fundamental political and economic changes in countries of central and eastern Europe.

When compared to west European standards, the transport infrastructure is underdeveloped, many strategic links are missing or of low standard. However, the main problem lies in outdated technology and underutilisation of existing facilities. For example, the railway network is quite dense and has a large capacity, but railways need substantial rationalisation. Similarly, road networks require better maintenance and traffic management. Consequently, making better use of existing assets should be given a priority.

Upgrading the existing systems cannot be done without investment in **hardware**[17] and **software.**[18] At the same time medium- and long-term objectives have to considered. Development of transport systems takes time and postponing investment in, for example, motorways would further increase the gap between central and eastern Europe and western Europe. However, investment in new infrastructure should be made after thorough economic and financial analysis and taking into consideration present and future financial capabilities of the countries involved.

In this connection, the question of **appropriate standards** has to be discussed. Usually, the full harmonisation of standards is declared as number one objective. This does take into account that in the foreseeable future the economic situation in CEE countries will not allow this objective to be met. Great effort has to be made to select appropriate standards at various stages of development.

Proper maintenance, modernisation and development of transport systems require vast financial resources. Mobilisation of these resources and their optimum allocation are of crucial importance. New financing instruments are urgently needed. Tools, concessions and tariffs policy should be used to recover at least part of the construction and maintenance costs and private financing may be the only practical option for some projects, such as motorways development.

NOTES

1. For example, urban population in Poland has grown from 34 per cent in 1946 to 62 per cent in 1991.

2. In Poland, the volume of transport per unit of GDP was equal to 1.52 tkm/1USD, in comparison to approximately 0.3 in western European countries.

3. Only 9 per cent of the network is equipped with a modern centralised traffic control system.

4. In 1990, the average commercial speed of passenger trains was equal to 44.9 kph and freight trains 23.9 kph.

5. In 1992 in Poland, over 160 passenger cars per one thousand inhabitants. However, if related to GDP per capita, motorisation rates are much higher than in more developed countries.

6. For example, in Warsaw in 1992, there were more than 300 passenger vehicles per one thousand inhabitants.

7. In Poland, in the first 9 months of 1992, industrial production increased by 1.2 per cent and construction production by 1.4 per cent. If *grey economy* product is added, these numbers would be much higher. The share of employment in the private sector increased from 52.7 per cent on 30 September 1991 to 57.7 per cent on 30 September 1992.

8. Suchorzewski W. Summary of selected forecasts relating to international passenger and freight traffic to/from and through Poland. Prepared for JICA. November 1991.

9. For example, the programme presented by the new Polish Government in October 1992, reckons the GNP in Poland will double by the year 2000.

10. Study on Motorway and Expressway Network. Prepared for the General Directorate of Public Roads. Warsaw University of Technology. May 1991.

11. Szczecin, 16 - 18 March 1992. The following countries participated: Belarus, the former Czech and Slovak Federal Republic, Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Norway, Poland, Russia, Sweden, the Netherlands (observer); representatives of EC, ECE-UN, ECMT, Nordic Council of Ministers, IMO, INMARSAT, UNDP, World Bank, EBRD, IRF, UIC and other organisations were present.

12. Extension of the TEM on the northern coast of the Baltic Sea (Karlskrone - Stockholm and Oslo).

13. Basiewicz T., Golaszewski A., Kopcinski E. Conception d'un reseau de transports eurasiatique. Rail International, No.5, 1992.

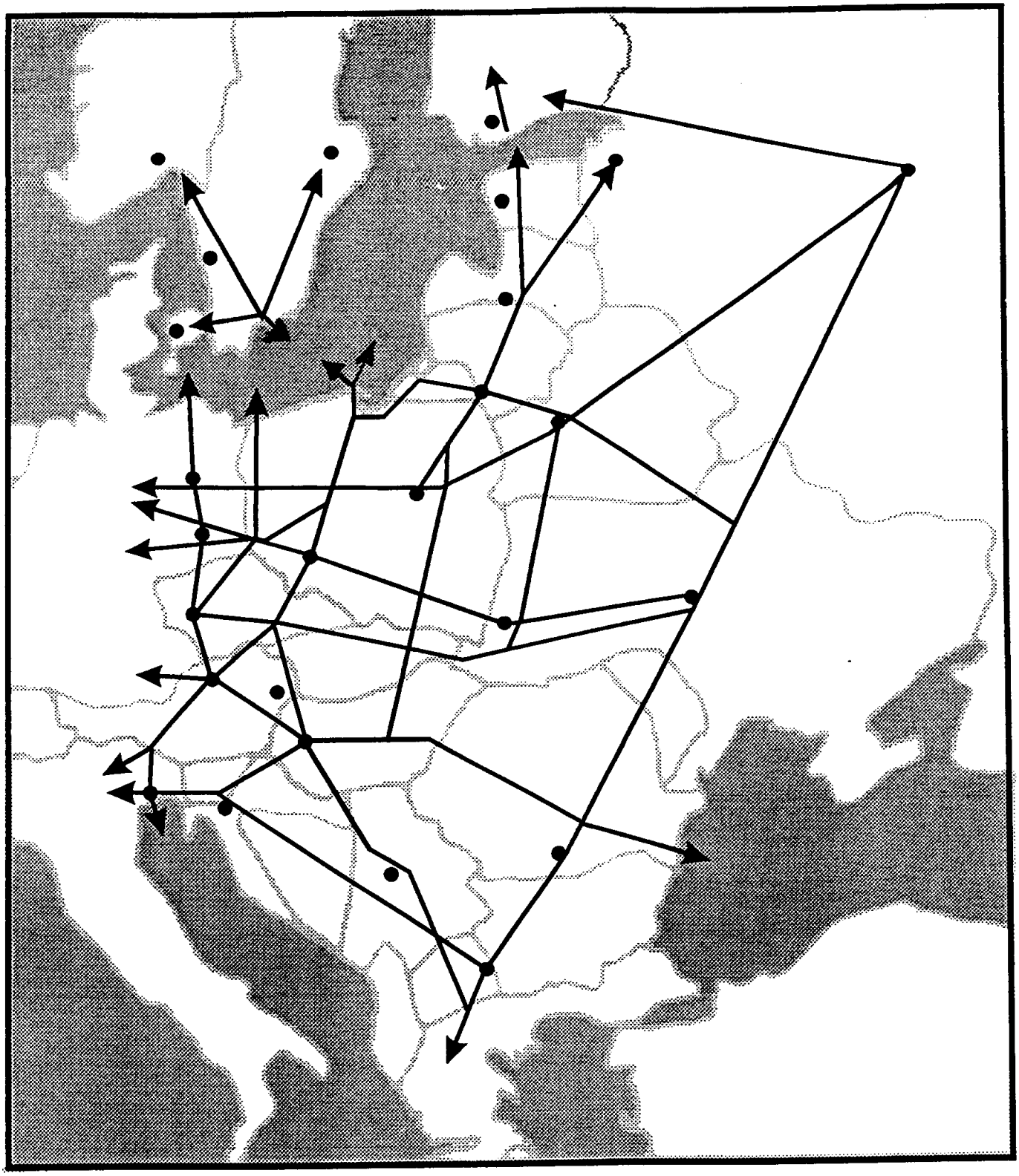
14. Motorways: 40-60 billion; rehabilitation of existing roads: 14 billion; upgrading of conventional railways: 30-40 billion USD (not including the costs of new high-speed railways which are proposed in some programmes). Source: International Transport in Europe; An Analysis of Major Traffic Flows in Corridors. United Nations, New York 1992.

15. Timar A., New Motorways by New Means Connecting Eastern Europe to the West. Paper presented at the 6th World Conference on Transport Research. Lyon, 29 June - 3 July 1992.

16. For example, Conclusions of the Presidency approved at Edinburgh on 12 December 1992.

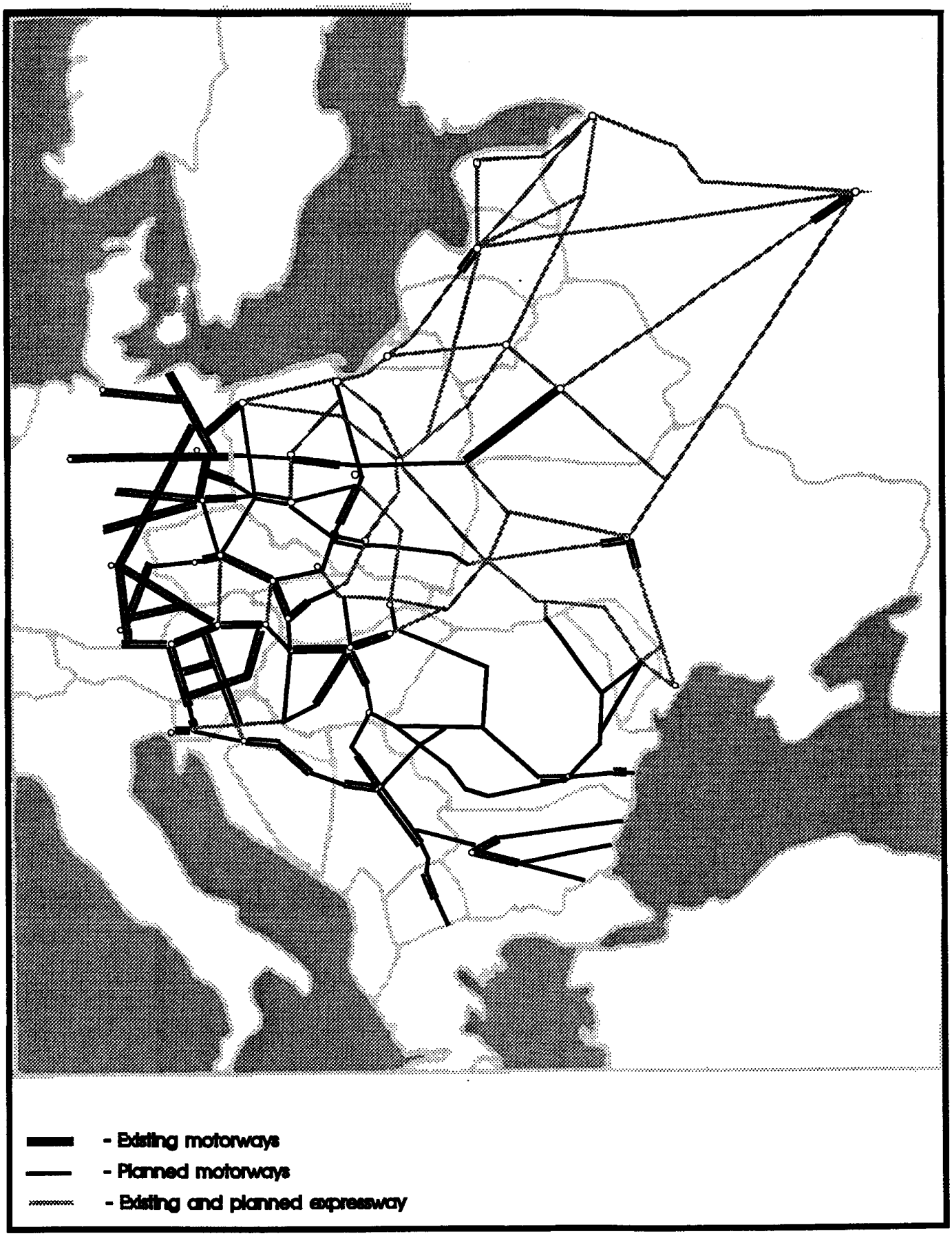
17. Rail, road and air traffic control systems, adjusting ports to new demand, new higher standard rolling stock, etc.

18. Streamlining management and operation, development of human resources, etc.



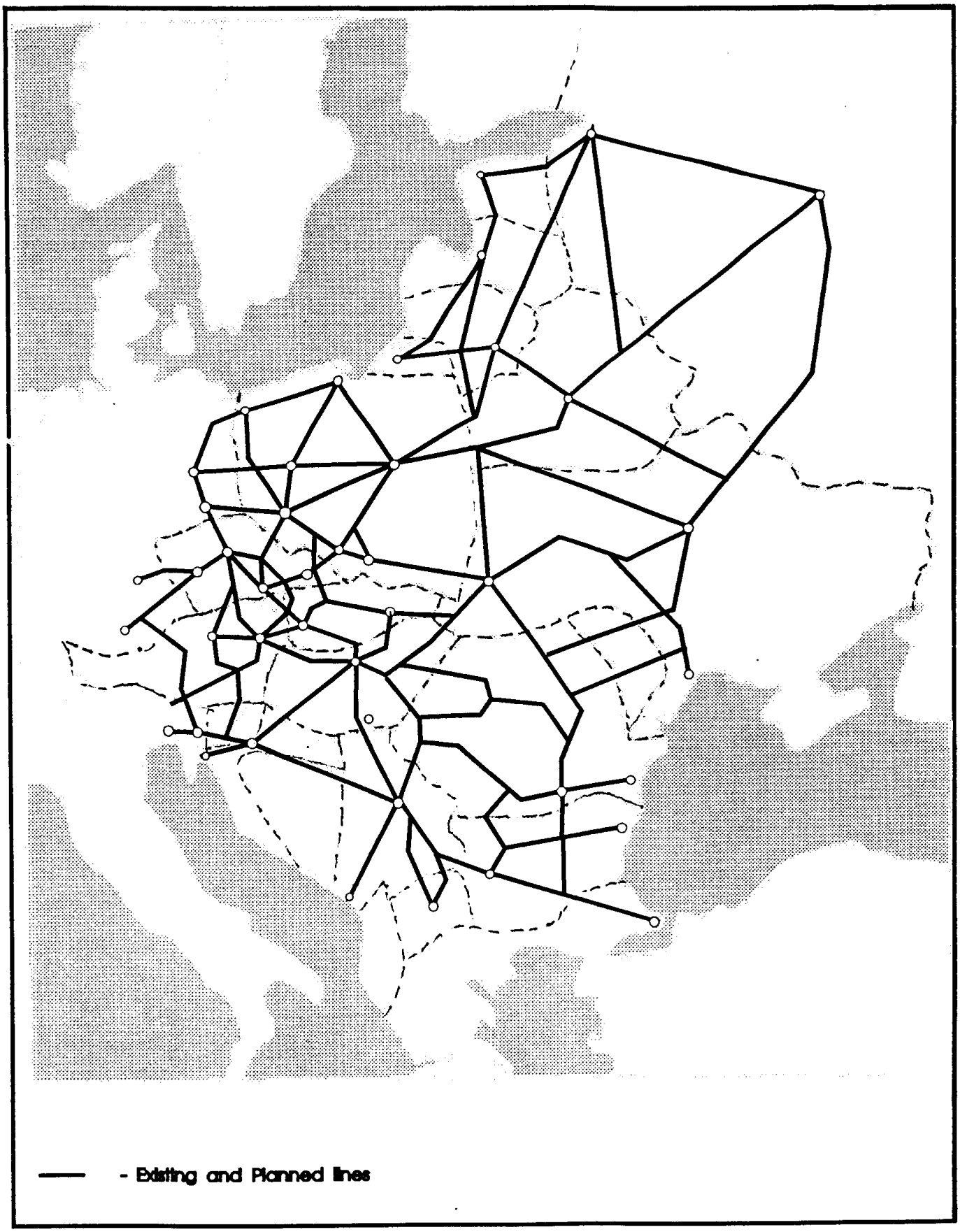
MAIN TRANSPORT CORRIDORS IN CENTRAL AND EASTERN EUROPE

W.SUCHORZEWSKI
WARSAW UNIVERSITY OF TECHNOLOGY
JANUARY 1993



MOTORWAYS AND EXPRESSWAYS IN CENTRAL AND EASTERN EUROPE.

W. Suchorzewski
November 1992



MAIN RAILWAYS IN CENTRAL AND EASTERN EUROPE

W. Suchorzewski
November 1992

PLANNING OF COMMUNICATION NETWORKS IN CENTRAL EUROPE IN THE NEW POLITICAL AND ECONOMIC CONTEXT: PROBLEMS OF INFRASTRUCTURE-PLANNING IN CENTRAL EUROPE WITHIN THE EUROPEAN TRANSPORT NETWORKS

The Romanian contribution to the development of the Rhine-Main-Danube transport link

Mr Mihai Serban NADEJDE
Architect/Town planner
"Urbanproject" Institute
Bucharest, Romania

1. TRENDS IN TRANSPORT DEVELOPMENT IN EUROPE

In the early 1970s much importance was attached to forecasts of a gradual decline in movements of people, as telecommunications technology became increasingly advanced. It was predicted that by the end of the century most of the labour force would be working at home.

Today, the discrepancy between the predictions and reality serve as a reminder to exercise caution when we make forecasts. I shall therefore tread carefully in this report.

In the last few decades the Europe of the Twelve has seen a spectacular increase in mobility. To curious onlookers like myself who have travelled little, initial contacts with "western" localities reveal two striking and contradictory features:

- the quality of the sites and monuments of historical and traditional interest, which have been so well preserved;

- the great concentration, and at times congestion, of road traffic, particularly in some magnificent areas which are the very ones being conserved with so much care and effort.

In the last few years movements of people have doubled in both quantity and distance in countries like the United Kingdom, leading to the conclusion that even the development of transport infrastructure can sometimes lead to an increase in the number of journeys made and the distances travelled.

However, within the European Community, there are shortcomings in the international long-distance road system, 20% of which does yet not comply with motorway standards, as well as in the rail network, on which 20% of interregional passenger trains run at speeds of less than 70 km/h.

In this context, it is worth noting the concern that exists in countries such as the United Kingdom, the Netherlands and Denmark (I apologise for the limited amount of information I have), where policies to modernise transport are subordinate to sustainable development. Finding ways of limiting pollution, particularly in places of historical and tourist interest, without affecting the efficiency of the road transport system, is an objective of travel and transport policies aimed at sustainable development.

I believe that the Dutch Government's policies to promote goods transport by rail or waterway can serve as an example, as can all the measures taken by the Department of the Environment in the United Kingdom and probably by other governments in Community countries.

To move on from the European Community countries to Europe as a whole, we can see that profound economic

and political changes are now taking place, sometimes at great speed and other times more slowly. At the root of them are certain major events of the last few years:

- the dissolution of Comecon (Council for Mutual Economic Assistance) of the Communist and Warsaw Pact countries;

- the break-up of the Soviet Union and the emergence of regional interests bringing together member countries of the former Union;

- the acceleration of integration within the European Community;

- and the violent disintegration of Yugoslavia.

This is making the definition of an overall European transport policy particularly difficult.

However, this does not mean that such a policy will not exist in the near future and that it should not be prepared in advance.

Transport infrastructure is a fundamental prerequisite to the proper movement of goods and people, an essential feature of a market economy, - a system which is now universally accepted in Europe and which implies great mobility and accessibility.

Devising coherent strategies for integrated transport development at European level is one of the major tasks facing central and eastern European countries today, and one that can be performed only by joint effort.

2. THE RECENT IMPACT OF MOVEMENTS OF PEOPLE AND GOODS ON THE TERRITORY OF ROMANIA

If we look at a map of Europe we can see that Strasbourg is nearer as the crow flies to Bucharest than to Lisbon, Athens or Istanbul, and yet Romania is still perceived as a distant and vaguely defined country by the majority of the Community's population.

The traditional belief of the last few decades that Romania was among those countries that one left and entered with great difficulty has not changed since 1989, at least not among those people who have tried to do so by car. The borders have been flooded in both directions by movements of people and goods never witnessed in Romania.

Indeed, at all the border posts, the number of people and types of transport that passed through in 1990 and 1991 was roughly 6 times greater than in 1989. The shortage of road border posts and the fact that those that existed were ill-equipped and operated very strict customs controls meant an average waiting time to leave or enter the country of 10-12 hours and in some cases more than 24 hours.

To remedy this situation, pursuant to a government decision in May 1992 to improve the activity of border posts, modernisation work began on 18 border posts; work on five of them was completed in 1992 (4 at the border with Hungary: Petea, Bors, Varsand and Nadlac; and one on the border with Bulgaria: Giurgiu); the remainder of the work will be completed by the end of 1993.

In addition, in October 1992, two new border posts were opened, one in the west, on the Hungarian border (Cenad) and the other in the south, on the border with Bulgaria (Bechet-Orechovo). There are also priority proposals for two more new posts on the Hungarian border (Salonta-Mehkerek and Turnu-Battonya) and one more on the Bulgarian border (Oltenita).

All these decisions reflect the predominance of links in the west and south, although relations with the Republic of Moldavia have made great advances. The decades during which the frontier areas were subjected to a policy, encouraged in Western Europe, that was contrary to that of integration have left deep scars. With few exceptions, the frontier areas became zones on the fringes of development, areas of immobility where movement was discouraged. For these reasons, in 1992 we launched long-overdue spatial development projects for these areas, one of the main aims of which is to study transport infrastructure.

During this development phase when action must be taken promptly, the main proposals, measures and actions have concentrated on the areas under the greatest pressure:

- the border with Hungary which, according to a survey of the volume of international passenger and goods traffic passing through Romania's road border posts, handles 60% of the total traffic;

- the border with Bulgaria, to relieve the pressure on the overloaded Giurgiu post.

However, it is clear that these attempts to improve the situation, which are absolutely essential and reflect Romania's economic and organisational potential today, must receive considerable international backing and must be part of an overall approach which is capable of generating action policies.

Romania's geographical location, the proximity of the Black Sea and the presence of a stretch of the Danube

more than 1,000 km long gives it great potential for the development of international transport.

3. SOME CHARACTERISTICS OF ROMANIA'S PRINCIPAL TRANSPORT INFRASTRUCTURES

For more than forty years, transport policy in Romania was strictly subordinated to the general so-called socialist principles of development.

The existing system of transport links was extensively influenced by excessive growth in some branches of industry, and the population's mobility needs were not, in general, taken into consideration.

Below are some significant facts and figures concerning the main transport infrastructures:

a. Road infrastructure

While the roads provide reasonable access to places, they do not come up to the international quality standards demanded by the growing traffic.

	Total length (km)	Modernisation (%)
All roads	72,816	23.2
Trunk roads (inc. motorways)	14,683	87.1
Motorways	113	100.0

- The road density of about 306 km/1,000 sq km is low by European standards;

- More than 72% of all trunk roads have exceeded their normal span of operation and roughly 5000 km are in a poor state of repair;

- Although the country's vehicle stock is relatively modest (90 vehicles/1,000 inhabitants and 51 cars/1,000 inhabitants), the poor state of road infrastructure means that traffic speed is too low.

b. Rail infrastructure

Although quantitatively rail transport in Romania is very intensive in terms of the number of kilometres of railway, qualitatively performances are below internationally-accepted technical standards.

	Length (km)	% of total
All railway lines, inc:	11,348	100
Electric lines	3,749	33

- The density of roughly 48 km/1,000 sq km is similar to that of other European countries;

- The proportion of electric lines places Romania among the countries at the bottom of the list;

- Transport speed is very slow (goods transport from door to door is roughly 2 km/h; passenger trains do not exceed 100-120 km/h).

c. Air transport infrastructure

The 15 domestic routes and 47 international routes are handled by 17 airports, 4 of which are used for foreign flights.

Of these four airports, only Bucharest-Otopeni has a permanent international role even though it does not have adequate services. For the present, the other airports only operate during the summer (Constanta) or from time to time (Timisoara and Oradea).

d. Waterways

In the country's principal sea port, Constanta, most of the construction dates from the last 30 years and is technically satisfactory.

The technical equipment and part of the port infrastructure (warehouses and storage platforms, access roads and so on) are generally old and badly maintained.

Where rivers are concerned, the hydrotechnical systems built on the Danube and the construction of the Danube-Black Sea Canal have made for a safe and direct link between the North Sea and the Black Sea, via the Rhine-Main-Danube canal.

Romania has 35 ports with a total capacity of about 140,000 tonnes/year (3 sea ports, 6 sea-river ports and 26 river ports). 30-40% of the port installations are more than 15 years old. However, vessels are equipped with facilities complying with international standards, although their reliability and level of maintenance are less than satisfactory.

It should be mentioned that in recent years goods traffic has been below the ports' operating capacity (capacity used: Constanta - 20%; Galati - 32%; Braila - 24%; and Tulcea - 17%).

The development and current level of transport in Romania, compared with the situation in other countries, is a reflection of the inadequate conditions in which the infrastructure and facilities have been built, maintained and operated.

4. PROPOSALS FOR A NATIONAL POLICY FOR THE DEVELOPMENT OF TRANSPORT INFRASTRUCTURE

In 1992 the Ministry of Transport co-ordinated the preparation of a strategic plan to restructure and develop transport in Romania. The short-term objective of this plan was to halt the deterioration in technical facilities and operation methods, and to preserve the operating capacity of all the types of transport. The long-term aims were to meet market demands (speed, comfort, safety and flexibility) and integrate Romanian transport technically and economically into the European transport system.

For these objectives to become reality, the following are essential:

a. appropriate legislation;
b. the principal financial resources required;
c. the intensive use of scientific potential.

The planned scenario for achieving these objectives, which was much too optimistic, consisted of three phases at the end of which (in the year 2005) the Romanian system would have been integrated economically and technically into the European transport system, through the modernisation and development of the transport infrastructures, installations and different modes of transport.

As the appropriate legislative conditions and financial resources were lacking, this somewhat unrealistic scenario was reconsidered.

It should be noted nevertheless that in 1992 the Parliament passed the Act concerning customs-free zones, an important act for the growth of international exchanges and the introduction of new technologies.

Of the financial resources needed for the above scenario, 70% was earmarked for the rehabilitation and modernisation of infrastructure, a *sine qua non* of the Romanian economy's integration into the European system.

Clearly, in the field of spatial planning, which includes transport infrastructure, the biggest responsibilities lie with the state. In recent years there have been changes and experimentation at government level in an effort to organise and clarify the strategic objectives and tactics to adopt.

In the context of such major development, in addition to the legal framework and human, financial and technical resources, there is also a need for large-scale participation by those with responsibilities and interests in the field, as well as good co-ordination between institutions. In this area there is still a lot to be done if spatial planning is to ensure co-ordination between sectorial policies and a global approach to the situation.

It seems that in the new government's strategy, a special place will be given to spatial planning, and transport infrastructure development programmes will command high priority.

Thus the proposals made by the Ministry of Transport have been rescheduled and a first phase has been outlined with the aim of achieving the following by 1995:

- motorways - about 570 km;
- dual carriageways - about 200 km;
- rehabilitation of trunk roads - about 820 km;
- in 1993, creation of a custom-free zone in the port of Constanta;
- completion of canals and the access zone for vessels to the Danube-Black Sea canal;
- new railway lines - about 65 km;
- modernisation of railways;
- modernisation of airports; priority for 1993: Bucharest-Otopeni airport.

Also designated as urgent is the environmental protection and ecological reconstruction of the Black Sea coastline and the Danube delta reserve.

The present government, in office since November 1992, will have to state its position very soon on tactics to be adopted, initially, in the field of transport, and make proposals for solving the major problem of funding for these activities.

However, long-term strategic objectives in the transport field should be defined only after a thorough analysis - with sustainable development in mind - of economic, social and environmental needs.

These needs will have a decisive influence on policies, which might otherwise have a single purpose and ignore the impact of transport infrastructure development on the territory.

In this respect, I think it is highly desirable that Romania collaborate with central European countries, in particular, in the field of spatial planning. Such collaboration would be very fruitful in the case of concrete projects.

5. TRANSPORT ON THE DANUBE - A CHALLENGE FOR EUROPE

European transport strategies will have to take account of the objectives of sustainable development, and consideration will undoubtedly be given to promoting movement by rail and waterway.

The Danube, Europe's second longest river, is "lucky" enough, unlike the longest, to rise in the west and will have a very important role to play.

Of the eight countries through which the Danube passes, Romania has the best access to this navigation route, with 1,075 km of the total 2,857 km.

After being sailed by Roman, Byzantine, Genoan and Turkish vessels, the Danube was designated an "international river" in 1856 and Romania, which benefited from part of its middle course (1,075-931 km) and all of its lower course (931-0 km - Turnu-Severin-Sulina), occupied a very prominent position in the European Commission of the Danube. The Romanian principalities and then Romania itself regulated the Sulina branch and dredged the Braila-Sulina portion, thereby obtaining for the first time a depth of 7.20 m on the maritime section of the Danube. Since the conclusion of the Belgrade agreement in 1948, navigation between Regensburg and Sulina has continued to flourish, and between 1971 and 1987 traffic in the Romanian sector more or less tripled, till 50 million t.f./year were carried, following the introduction of the Portile de Fier hydro-energy and navigation system.

The construction of the Danube-Black Sea canal, which port of Constanta, has been a major factor in promoting navigation on the Danube.

The completion in September 1992 of the North Sea-Black Sea link, along the Rhine-Main-Danube route, could be the starting point for a major European movement and transport axis, between Rotterdam, Constanta and Istanbul, virtually half the length of the route via the Atlantic and the Mediterranean. The importance of this navigation link has been further enhanced by the contribution it can make to speeding up integration of the various social and economic structures in western, central and eastern Europe, in conditions conducive to sustainable development.

I do not wish to dwell any more on the various advantages for Europe of efficient use of this transport route, as they are generally known.

In the following chapter, I should like to mention some aspects of the potential, as well as the problems, of Romania's Danube zone.

6. SPATIAL PLANNING PROBLEMS IN THE ROMANIAN DANUBE ZONE

a. Natural potential and environmental conservation

The Romanian Danube zone has a surface area of roughly 38,000 sq km and covers the entire southern part of the country, from west to east.

The principal resource of the zone, which covers 80% of the total surface area, is arable land which, incidentally, is the best in the country.

Underground resources are also very rich and varied (coal, oil, gas, polymetallic and non-metallic minerals, limestone, sandstone and so on).

Sites of particular tourist value are concentrated at either end of the zone: in the west, the spectacular Danube gorge at Portile de Fier, between the Carpathians and the Balkans, and in the east, the Danube delta recently designated a biosphere reserve.

In addition to these two sub-zones of major importance, there are a host of other sites along the length of the Danube with potential tourist value because of their landscape, their thermal waters or the Black Sea coastline.

Unfortunately, air, soil and water pollution have worsened unrelentingly in recent years.

As far as the watercourses are concerned, although the Danube is in the second quality category, many of its tributaries, such as the Jiu and the Olt, are in the third quality category, while others (Arges and Ialomita) are in a state of complete degradation.

Similarly, areas with exceptional ecological and tourist potential, such as the Black Sea coast and the Danube delta, are prey to the effects of pollution, which has produced a number of grave ecological modifications.

There is a need for urgent measures, both legislative - the passing of the Act on environmental quality and the delimitation and designation of protected areas - and operational - at this stage, work must be done to

improve the ecological conditions in the Danube delta and on the Black Sea coast.

b. Demographic potential and localities

The population of the Danube zone is approximately 5,600,000, about one quarter of Romania's total population.

70% live in towns, most of them in three major conurbations:

- Bucharest and its immediate vicinity: roughly 2,100,000 people in the centre of the Danube zone;
- Fetesti - Cernavoda - Constanta: about 530,000 people, in the eastern part of the zone;
- Galati - Braila: about 600,000 inhabitants, in the north-eastern part of the zone.

It should be said that the demographic potential is, in general, very good, with the working population accounting for about 55% of the total. However, in late 1992, the total number of unemployed stood at more than 260,000 with strong prospects of rising further.

In the Danube zone, in addition to Bucharest there are two other towns with more than 300,000 inhabitants, two with more than 100,000 and four with more than 50,000, which together with 35 small towns and 1,168 villages form a relatively balanced network of localities.

The concentration of more than 34% of employment in industry has led to the underdevelopment of sectors, such as transport and telecommunication, which could have made a significant contribution to the balanced development of all the zones and localities.

The development of traffic on the Danube, and of port activities, would make use of existing potential and at the same time stimulate the general growth of the zone. At present, with the exception of the ports of Constanta, Galati and Calarasi, the ports are in need in modernisation, new destinations, improved access and so forth.

A lot of hope has been invested in the creation of the customs-free zones, planned for the major ports of Galati, Braila and Giurgiu, and along the Danube-Black Sea canal.

To relieve traffic at the heavily-congested Giurgiu border post, improvements and special facilities are needed at the ports of Oltenita, Zimnicea, Turnu-Magarele, Corabia and Bechet to encourage traffic to cross there.

Similarly it is necessary to study the relationship of localities with water and port zones, the impact of a free zone on the territory and, of course, the provision of all the infrastructure necessary, with rapid road and rail links taking priority.

It is clear that the spectacular growth of traffic on the Danube and of transport infrastructure in the zone can bring significant advantages and, eventually, upgrade local and regional life. Conversely, it can also exacerbate environmental pollution and eat up agricultural land.

Since this problem is part of the broader issue of sustainable development, it is essential to make environmental impact studies and, subsequently, to identify, as a priority, town-planning regulations for each zone. In any event, the image of the Romanian coastline can be modified only with the contribution of local authorities and with substantial backing from government policies.

c. Infrastructure in the Danube zone

The road and rail networks in the zone are in a precarious situation, as far as both structure and viability are concerned.

To resolve this situation, what is needed is: investment to complete the Bucharest-Constanta motorway and its extension towards Timisoara and the western border; modernisation of trunk roads; improvements to dual carriageways; bypasses for major urban centres; new sections, a second track and electrification in the case of some railway lines; rapid links with the ports; new free zones and so on. Moreover, to facilitate transfrontier relations, new bridges should be built across the Danube.

Most of these proposals are already contained in spatial planning projects for the Danube zone.

The development of navigation on the Danube demands, first and foremost, the eradication of the critical points in the Portile de Fier-Braila sector, which could be achieved by installing hydroelectric energy and navigation facilities (Turnu-Magarele-Nikopol, Calarasi-Silistea, Dinogetia-Macin) or simply by improvements to the navigation channel to allow the permanent navigation of barges up to 3,000 t.f.

It will also be necessary to carry out rational plantation work in the river basins of the Danube's main tributaries (Jiu, Olt, Arges, Ialomita, Siret, Prut) to reduce the solid deposits flowing into the river.

The extension of Romania's waterway network, with the completion of the unfinished portions, namely Bega-

Tisa, Olt (Slatina-Danube), Arges (Bucharest-Danube), together with the reactivation of navigation on the Prut, will make waterway transport more efficient.

Clearly, such complex and large-scale work, even if it is programmed over a ten-year period, is not feasible without European technical and financial co-operation.

I should simply like to say that to achieve normal development of transport infrastructure in the zone, it is essential to promote similar development in the energy and telecommunications fields, which are also in a relatively critical state.

7. POSSIBLE ROMANIAN POLICIES FOR COHERENT DEVELOPMENT OF THE MAJOR RHINE-MAIN-DANUBE LINK

On the basis of the analysis made, we have tried to indicate some features of the natural, human and technical potential that can be taken into consideration when specific structures are set up, so that the Danube zone can be integrated into European structures.

From an economic standpoint, this part of Romania enjoys certain material and technical conditions and employment resources which, once modernised and rendered efficient, could help it to adjust rapidly to the European Community economic system.

The main problems concern the security of certain initial structures for meeting the needs that will arise following the integration resulting from the direct maritime link between the Black Sea and the North sea.

I believe that Romania's spatial planning policies, which will be able to achieve their aims if they are properly implemented, should have three dimensions:

a. an overall dimension, covering the entire Danube zone and requiring permanent transfrontier monitoring;

b. a sub-zonal dimension, for parts of the territory demanding specific policies and complex development;

c. a local dimension, which is crucial since it is the city and town councils which take decisions on land use and local management.

To illustrate this more clearly with an example, the zones situated at the extremities, between the point where the Danube enters Romania and Portile de Fier II, and the Danube delta could benefit from development that is subordinated to policies to protect their outstanding environment. I think it would even be possible to reduce river traffic through the delta to improve conservation conditions, while developing transport in the Danube-Black Sea canal region.

Special policies are also necessary in the sub-zones of Portile de Fier II, Calarasi and Constanta, big farming areas where efforts must be made to modernise methods and create "reception structures" for internal and foreign business.

The biggest risk now hanging over an area like the Danube zone is that of chaotic development as a reaction to the failure of decades of central planning.

To achieve an global design that can be proposed to local communities, I believe that the following measures must be implemented urgently:

- enhance knowledge among the Danube countries of spatial planning in the Danube zone in other countries so that they can co-ordinate studies and policies and possibly conduct joint studies on the impact on the territory of certain transfrontier infrastructure systems;

- outline a regional programme to conbine river transport with rail and road transport so that the waterways handle a growing proportion of goods transport in the Danube basin;

- arrange regular exchanges between countries in connection with administrative organisation and local finances, to strengthen local autonomy;

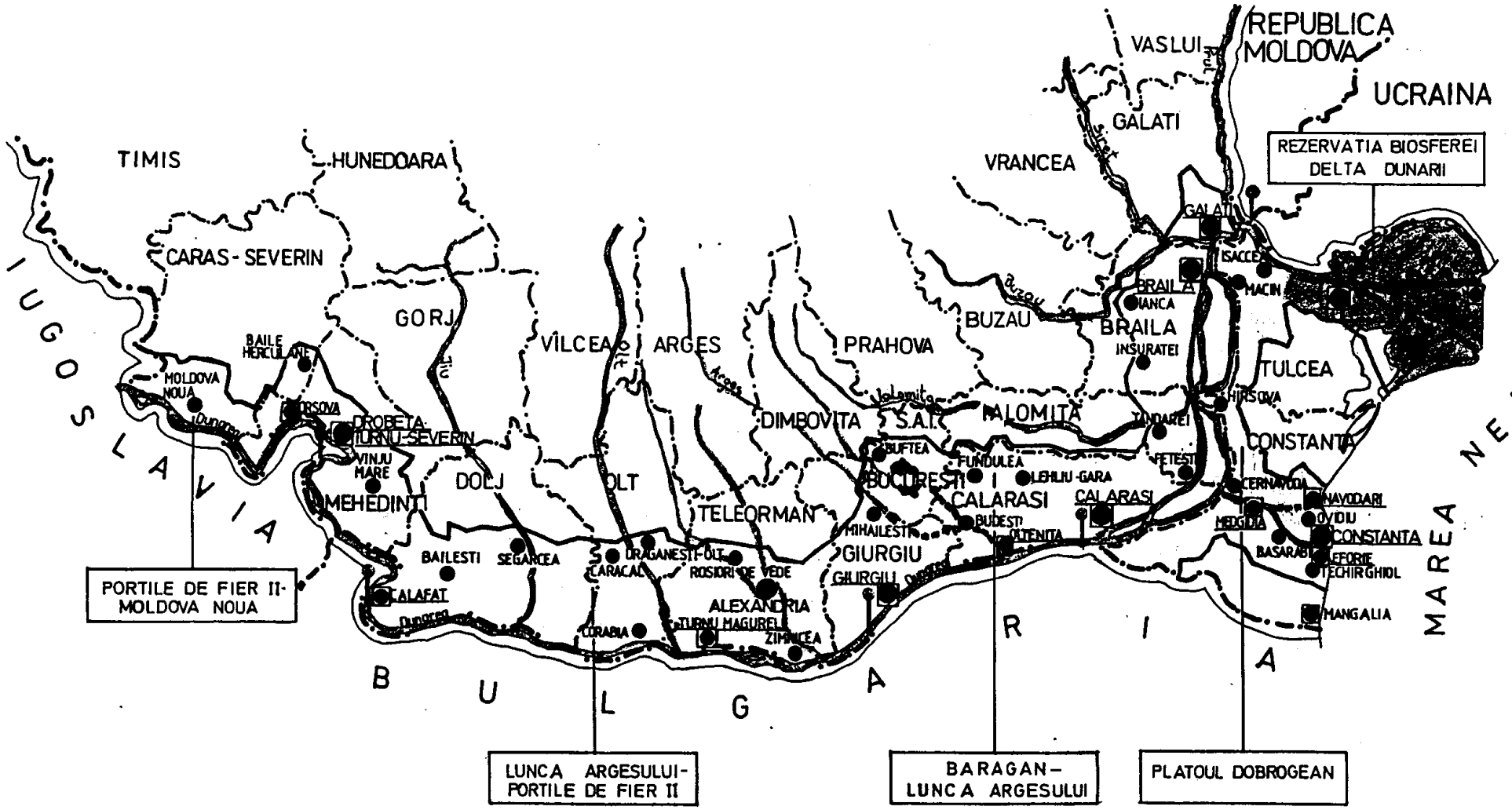
- seek international funding to modernise and expand transport infrastructure and ports, and develop free zones in the Danube territory;

- devise projects for spatial planning, identifying, cataloguing and preserving all the zones of special ecological and landscape value, as well as those of archaeological, historic, architectural and environmental interest;

- create a large monitoring and programme network to upgrade air, soil and water quality in the countries through which the Rhine-Main-Danube link passes.

I believe that permanent co-ordination at Council of Europe level would do a great deal to ensure that these measures to bring about coherent development along this major European route are successful. Such action would have symbolic value for the cohesion of our continent.

ZR DUNĂREA ROMANIA



THEME 3

CO-OPERATION FOR A BETTER ENVIRONMENT IN BORDER REGIONS: IMPROVEMENT OF THE ENVIRONMENT AND ESPECIALLY TRANSBORDER POLLUTION MONITORING AND CONTROL WITHIN COMMON REGIONAL DEVELOPMENT CONCEPTS

CHAIRMAN: Mr N. ENYEDY
Professor of Geography
Hungarian Academy of Sciences, Budapest

REPORTS PRESENTED BY:

CO-OPERATION FOR A BETTER ENVIRONMENT IN BORDER REGIONS: IMPROVEMENT OF THE ENVIRONMENT AND ESPECIALLY TRANSBORDER POLLUTION MONITORING AND CONTROL WITHIN COMMON REGIONAL DEVELOPMENT CONCEPTS

Mr Tor JOHANNESSEN
Senior Executive Officer
State Pollution Control Authority
Oslo

I. INTRODUCTION - TRANSBORDER POLLUTION PROBLEMS

Transborder pollution problems are universal as they are found in all regions and all parts of the world. When we speak about transborder pollution, it is normally linked to a medium, either water or air. Familiar examples of transborder pollution are riverine pollution, eg the Danube or the Rhine. The Danube might be an example of increasing pollution problems or increased knowledge of pollution, while the Rhine may serve as an example of a well-documented problem where the countries involved have come together to solve the problem and where it can be shown that water quality improves when measures are taken. Still, it will probably be a long time before these known problems are solved.

Other examples of transborder pollution are found in the marine environment. The North Sea may serve as one example. Riverine inputs or direct discharges from industry, municipal sewage treatment plants and runoff from agricultural areas end up in the marine environment. The main pollution problems linked to these examples are eutrophication caused by nutrients from sewage, agriculture and industry and perhaps more severe problems linked to heavy metals and organic multipollutants that may be toxic to aquatic organisms or they can accumulate in the food chain. These pollutants may be transported via coastal and open sea currents to other regions, leading to adverse effects which reduce the value of the environment for fisheries or recreational purposes in areas remote from the sources.

The last example may serve as an introduction to the topic for this lecture, which is transborder air pollution. One of the best known examples (and the most "democratic" type) of transborder pollution problems is the Tchernobyl accident in 1986. This lecture will however concentrate on more traditional air pollution problems.

II. TRANSBOUNDARY AIR POLLUTION PROBLEMS

1. Compounds, sources and problems

This report will concentrate on the pollution problem that is normally called "long-range transboundary air pollution". The problem is linked to and caused by different compounds which are pollutants originating from anthropogenic emissions from normal activities. These pollutants are, when emitted into the atmosphere, transported over considerable distances. While particles will fall down close to the source of emission, the gaseous compounds will, within the space of a few (one to five) days, be transported over distances ranging from 100 to 1 000 km. In the air, parts of the components will undergo chemical transformations, normally oxidation. Finally, the pollutants will be deposited, either as gases or particles as dry deposition, or they will be absorbed by clouds and fall out as wet deposition with the rain. The compounds can also be removed from the atmosphere by fog, droplets and aerosols in what is called occult deposition.

The first example of transboundary air pollutant - radioactivity (from Tchernobyl) - occurred as a result of

an accident. Such accidents are severe and the consequences perhaps worse than ordinary pollution, as they have to be handled differently than "normal" pollution problems, and will not be a topic for this report. The reason for using the Tchernobyl accident as an example is that it demonstrates well how pollutants transported by air may fall out and affect areas far from the emission source.

A lot of different pollutants are emitted in the atmosphere. The most important groups of compounds are sulphur (S), nitrogen (N), photochemical oxidants, toxic heavy metals and persistent organic carbon. Some of these pollutants are primary pollutants which are emitted directly in the atmosphere. Others are secondary pollutants which occur as a result of chemical reactions and transition of primary pollutants in the environment. One of the most important secondary pollutants in the context of transboundary air pollution is ozone (O_3)

All these pollutants are subject to national measures and international negotiations with the aim of protecting the environment. Environmental toxics like heavy metals and POCs are subject to a 90% reduction in atmospheric emissions and direct discharges in the marine environment through the North Sea Declaration.

In the following, the main emphasis will be on pollutants regulated by the Convention on Long-Range Transboundary Air Pollution (the LRTAP Convention). These pollutants are sulphur, nitrogen oxides and VOCs. Activities regarding heavy metals and POCs are also ongoing, but there are as yet no protocols which regulate emissions in the atmosphere of these pollutants (except the North Sea Declaration).

Sulphur

The main sources of sulphur emission are the use of fossil fuels (coal, oil and gas) in stationary sources (power plants, household heating and industrial processes) and mobile sources (cars, ships, aircrafts, etc). Natural emissions (eg volcanoes and biological processes) contribute relatively little to the total sulphur emissions, only approximately 5-10%. By combustion, sulphur is emitted as SO_2. In the atmosphere SO_2 is gradually transformed into SO_4 which is absorbed in water and gives sulphuric acid. The sulphur compounds

Emissions of sulphur in Europe have increased slowly from the beginning of this century from approximately 8 million metric tons yearly until around 1950 when emissions were about 12 million metric tons. After 1950, the emissions increased rapidly and they were almost doubled in 1980.

The total amount of SO_2 emissions in Europe was approximately 27.5 million tons (as S!) in 1980 and in 1991 they were at a level of approximately 20.3 million tons, which is a reduction in the sulphur emissions of about 25% since 1980. The countries which in 1985 undertook emission reduction of 30% reached this goal in 1990.

The largest emissions of SO_2 come from the former USSR, Germany (figures for the former Democratic Republic and the Federal Republic are combined), the United Kingdom and Poland.

This is also partly reflected when we look at the map of concentrations of SO_2 in Europe. By far, the highest concentrations are found in central Europe. The reason for a slight deviation between the emission map and the concentrations map is due to weather conditions, with the wind that more rapidly removes SO_2 from western Europe than in central Europe. The total deposition of SO_2 in Europe was 17.0 million tons (as S) in 1985 and 15.4 million tons in 1991. The deposition, reflected by the emission pattern, is also highest in central Europe.

Nitrogen

The main source of nitrogen emissions is the use of fossil fuels in motor vehicles which account for approximately 50% in power plants and industrial processes. Nitrogen is emitted as NO which is oxidized to NO_2. In addition there are natural sources of N_2O (bacterial activity). The common denomination for NO and NO_2 is NO_x. Nitrogen is also found as HNO_3 (nitric acid) as a gas or as NO_3 particles. NO_x may contribute to acidification. These compounds are also important in the formation of photochemical oxidants. Furthermore, nitrogen serves as an important nutrient in terrestrial and marine ecosystems. As such deposition of nitrogen may have positive effects, in particular in terrestrial ecosystems, but in excess it can cause diverse effects like eutrophication in the marine and terrestrial environments.

Nitrogen oxides show an increase of about 5% in emissions, from 21.8 million tons (21.780.000 tons as NO_2) in 1980 to 22.9 million tons (22.875.000 tons as NO_x) in 1991. The figures for emissions of ammonia are more uncertain, but they seem to be fairly constant over the years, at an amount of approximately 8.900 million tons (as HN_3).

The highest emissions of NO_x are, like for sulphur, found in central Europe. The highest levels of NO_2 in ambient air are found in western Europe. This can be explained by the exhaust fumes from cars which are emitted at ground level and therefore not equally well mixed and transported like SO_2.

Ammonia (NH_2) is emitted mainly from agricultural areas where manure and industrial fertilizer are the sources. Ammonia is neutral in the air, but it may cause acidification in soils and the aquatic environment after being oxidized.

Photochemical oxidants

These are often secondary pollutants formed by chemical reactions under the influence of sunlight. The most important pollutants which form photochemical oxidants are volatile organic hydrocarbons (VOCs) and NO_x. VOCs (also called non-methane hydrocarbons, NMHCs) include many different chemical compounds, often with different properties. Some of these compounds have a negative effect on vegetation, materials and human health. The VOCs often originate from industrial processes, use of organic solvents and from oil and gas industry (loading and handling of oil, petrol, etc). The most important photochemical oxidants are tropospheric ozone (O_3) and peroxyacetylnitrate (PAN). Ozone is suspected to have negative effects on vegetation, materials and human health. The background level of tropospheric ozone in Europe has doubled during the last 100 years.

Heavy metals

The most important heavy metals related to transboundary air pollution are cadmium (Cd), mercury (Hg) and lead (Pb). Most of the heavy metals originate mainly from industrial processes while the main sources of lead is emissions from cars using lead petrol. Cadmium and mercury can be related to effects on health. Heavy metals also accumulate in the food chain. In areas with high inputs of long-range transported air pollutants, high concentrations of cadmium have been found in the liver of moose, reindeer and sheep.

Mosses have proven to be well suited for studies of deposition of heavy metals since they do not have any root system and take all their nutrition from the atmosphere. The Nordic survey on concentrations of heavy metals in mosses reflected a spatial pattern similar to the deposition pattern for sulphur and nitrogen. This survey also showed that the levels of lead have decreased during the last decade as a result of more cars using unleaded instead of leaded petrol.

Persistent organic carbons

POCs originate from industrial processes. Some (like PAH - polyaromatic hydrocarbons) are also formed naturally, from forest fires, etc. A lot of the persistent chlorinated organic compounds are suspected to have toxic effects on living organisms. They are often very persistent which means that they are not readily degraded in the environment, and they may lead to changes in ecosystem functions in the long term. They also accumulate in the food chain and in humans. Among these organic compounds are pesticides (lindane, DDT, toxaphene, dieldrin and chlordane), industrial chemicals like PCBs (polychlorinated biphenyls), chlorinated alkanes and ethylenes and unwanted by-products from industrial processes such as dioxins. An example of the problem is the accumulation of organic micropollutants such as PCBs and others that are found in high concentrations in seal blubber and in the fat of polar bears. Some POCs are suspected of being carcinogenic and clastogenic, and may affect reproduction in animals.

2. Effects of acidification

The term "acid rain" has been known for more than 100 years, as it was introduced by a British chemist in 1872. From the beginning of this century it has been known that acid rain could cause fish kills. Further research results confirmed the hypothesis of acidification and effects on fish stocks during the 1960s and the 1970s.

A lot of research has been carried out to establish the links between emissions and effects. To mention some, the NAPAP studies (National Acid Precipitation Assessment Programme) is an extensive programme that has been running for about a decade in the USA. A similar monitoring and research programme has been carried out in Canada. In Europe, the Norwegian SNSF Programme (Acid Precipitation - Effects on Forests and Fish), the Dutch Priority Programme and the British-Scandinavian SWAP Programme (Surface Water Acidification Programme) can be mentioned. A lot of other national and international monitoring and research programmes have also been carried out or are still ongoing.

Among these programmes, the Surface Water Acidification Programme (SWAP) has found evidence for increased acidification at the same time as the increase in the use of fossil fuels took place. By studying lake sediments, it was found that changes in diatom societies occurred simultaneously with the increased emissions in the UK, indicating that the lakes were acidified. Studies of particles from lake sediment cores show a similar pattern, with more particles identified as a result of coal burning at the time when the biological changes took place.

Direct effects

Direct effects of SO_2 affect vegetation, leading to reduced growth and cause damage to leaves and needles or to forest die back as observed in parts of central

Europe. More important direct effects of SO_2 may be related to health problems such as the reduction of pulmonary functions, allergenic or asthma reactions, bronchitis and even increased mortality. Exposure of SO_2 to materials also leads to corrosion. In the USA the impact of SO_2 (and other gaseous compounds) on visibility has been stated as a major problem.

Effects on health may also be attributed to direct exposure of NO_x. The effects can, as for SO_2, be allergenic and lead to the deterioration of pulmonary functions. Direct effects of NO_x at the levels measured in Europe are, however, not observed, but NO_x may cause effects together with other pollutants like SO_2 and ozone.

Ozone is an oxidant which may also lead to adverse effects on human health, vegetation and materials. The effects of ozone on health are for example inflammatory reactions, effects on pulmonary functions etc. A lot of plant species, especially some crops, broad-leaved trees and conifers are sensitive to exposure of ozone. Ozone may lead to reduced growth and direct damage to the leaves and needles of the plants.

Indirect effects

Acidification is mainly caused by sulphur, but nitrogen may contribute in areas where "nitrogen saturation" occurs. This is normally in areas with little vegetation and a higher deposition of nitrogen than the plants are able to utilise. As such, nitrogen may become a mobile anion of a strong acid-like sulphate, leading to soil and water acidification.

The best documented effects of acidification are given for surface waters. Extensive lake surveys have been performed in North America, Finland, Sweden and Norway. These surveys all show that many lakes are severely acidified. Surface water acidification is also well documented in other countries. In 1986 a regional investigation of surface water acidification in the ECE region was carried out. A less sophisticated survey of the areas sensitive to surface water acidification was conducted in 1989 by the Norwegian Institute for Water Research (NIVA), as a part of the work under the ICP-waters. The best documented damage caused by water acidification is the effects on fish populations. Field observations and research results exist from several countries suffering from high atmospheric inputs of sulphur, confirming the first observations and hypothesis that acid rain would cause fish kills.

Similarly, surveys of soil sensitivity to acidification have been conducted by the Stockholm Environmental Institute at York (SEI-Y). Soil acidification is a problem in large areas of central Europe. The most severe effects of soil acidification are the damaged trees and the forest decline which is observed in countries in Europe. It has been reported (in particular through the ICP-forest) that forests in Europe are losing their vitality, as observed by reduced crown density and in discoloration (yellowing of needles). Soil acidification is causing leaching of nutrients, mainly calcium and magnesium, which leads to poorer nutritional conditions, and causes damage to roots and mychorrhiza (which is important for nutrient uptake).

Nitrogen is an important nutrient which in many areas is leading to increased forest growth. It can, however, lead to imbalance in nutrient uptake in trees. Inputs of nitrogen (as a nutrient) has also led to adverse effects on terrestrial ecosystems other than forests. It has been documented in, for example, the Netherlands that a change in the vegetation composition of heathlands has occurred during the last decades. The shift is mainly from a rich flora with high diversity towards a vegetation dominated by a low number of species or even almost to monocultures of certain grass species. Similar observations have been made in other parts of Europe.

Eutrophication is a problem in some marine areas, especially in near-coastal waters in parts of the North Sea. Atmospheric inputs of nitrogen, either direct to the sea surface, or indirect through precipitation and runoff via rivers contributes a major part of the anthropogenic inputs of nitrogen.

Acidified water and soils may increase the leaching of heavy metals from soils, thus representing a potential health risk. The relationship between the Alzheimer disease and aluminium is not well documented, but there is some suspicion that aluminium may contribute to presenility.

The effects of acid precipitation on buildings, monuments and on underground structures in acidified soil are well documented. Evidence is also put forward that acidic preparation in cold climates more frequently lead to sparkover on electric power lines.

Although it is difficult to estimate the costs of the negative effects of acidification, there can be no doubt that this problem is directly or indirectly costing the society a large amount of money.

III. CO-OPERATION ON TRANSBOUNDARY AIR POLLUTION PROBLEMS

1. The Convention on Long-Range Transboundary Air Pollution (LRTAP Convention)

This Convention was the first multilateral treaty to protect the environment against the increasing problems

such as acid rain and photochemical smog. The Convention was adopted in November 1979 in Geneva. It was elaborated within the framework of the UNECE (UN Economic Commission for Europe) and entered into force in March 1983. Currently 35 Parties - including most European countries, the European Economic Community (EEC), USA and Canada - are members of the Convention.

The Convention lays down general principles of international co-operation for air pollution abatement, and the UNECE fulfils the secretariat functions. The institutional framework is set up at three levels:

The **Executive Body**, as the supreme policy-making assembly on which all Contracting Parties are represented and which meets annually to adopt the workplan and review its implementation. Between sessions, a Bureau consisting of the chairman and four vice-chairmen deals with matters requiring interim action.

Intergovernmental **Working Groups**, established by the Executive Body as standing subsidiary bodies open to all Parties and dealing with specific sectors of the workplan. The three most relevant groups in this connection are:

The **EMEP Steering Body**, which is responsible for the air measurements and modelling programme.

The **Working Group on Effects**, which is responsible for the effects programme which currently consists of five International Co-operative Programmes (ICPs) and the Task Force on Mapping (Critical Loads and the Geographical Areas where They are Exceeding), and The **Working Group on Strategies**, which is the preparatory group for the renegotiations of the protocols.

Intergovernmental **Task Forces** established under these subsidiary bodies, either *ad hoc* to produce a specific report, or to supervise a continuing co-operative programme. Responsibility for each task force rests with a designated lead country. The ICPs and Task Force on Mapping are some of these groups.

Four protocols have been adopted under the Convention, laying down further obligations for the Parties to it:

The *Protocol on Long-term Financing of the Co-operative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP)* was adopted in Geneva in September 1984; entry into force 28 January 1988. It commits Parties to mandatory annual contributions to the EMEP budget approved by the Executive Body.

The *Protocol on the Reduction of Sulphur Emissions or Their Transboundary Fluxes by at least 30 per cent* was adopted in Helsinki in July 1985; entry into force 2 September 1987. It commits Parties to a flat-rate cut in total national emissions by 1993, taking 1980 levels as the baseline.

In addition to these obligations, a number of countries have given a declaration of intent to reduce their emissions by more than 30%. Most of these countries have signalled a 50% reduction.

The *Protocol concerning the Control of Emissions of Nitrogen Oxides or Their Transboundary Fluxes* was adopted in Sophia in October 1988; entry into force 14 February 1991. It commits Parties to freeze national emissions at 1987 levels by 1994, and contains a package of abatement measures.

In addition to these obligations, a number of countries have given a declaration of intent to reduce their emissions by 30% by 1998, taking 1986 levels as the baseline.

The *Protocol concerning the Control of Emissions of Volatile Organic Compounds or Their Transboundary Fluxes* was adopted in Geneva in November 1991. It commits Parties to reduce national emissions of VOCs by 30% by 1999, taking 1988 levels as the baseline. Some exceptions are made for what is called "Tropospheric ozone management areas" - TOMA.

The work under the Convention

The **EMEP** programme has three main elements:

1. collection of emission data
2. measurement of air and precipitation quality
3. modelling of atmospheric dispersion, using emission data, meteorological data and functions describing the transformation and removal processes.

The purpose of the models is to provide concentration and deposition profiles for major air pollutants over Europe. Co-ordination and intercalibration of chemical measurements are carried out at the Norwegian Institute for Air Research in Lillestrøm. The two co-ordinating centres for modelling activities are the Norwegian Meteorological Institute in Oslo and the Institute for Applied Geophysics in Moscow. The EMEP sampling network, consisting of 96 stations in 24 countries in Europe is based on 24-hour sampling of air and precipitation. The accuracy of the atmospheric dispersion calculations is evaluated by frequent comparison with measurements. During the fifth phase (1990-1992) gas/particle measurement at EMEP stations include sulphur and nitrogen compounds and ozone. Precipita-

tion measurements include amount, conductivity, pH/H+ and major ion constituents (base cations and anions of strong acids).

The effects of air pollutants is monitored through five International Co-operative Programmes (ICPs):

ICP-materials: The effects on **materials**, including historic and cultural monuments are of a major concern in Europe and North America. Within the Convention workplan, they are monitored by an ICP under the leadership of the Swedish Corrosion Institute, with sub-centres in the Czech and Slovak Republics (for steel, zinc and aluminium), Germany (copper and cast bronze), Norway (painted coatings) and the United Kingdom (stone materials). Over a four-year period 1987-1991, uniform exposure measurements were taken at 39 sites in 14 countries, to assess what damage is inflicted on materials by the combination of sulphur and nitrogen oxides, acid precipitation and varying climatic conditions.

ICP-forests: An ICP led by Germany has developed a manual for the monitoring and assessment of air pollution effects on **forests** and, since 1986, has carried out annual large-scale surveys of forest damage in 27 European countries. The focus of further research is on intensive studies at permanent observation plots, with a view to determining cause-effect relationships between air pollution and forest decline. Initial support for this programme, in particular for co-ordination work performed by the Federal Research Centre for Forestry and Forest Products in Hamburg (Germany) and the Forestry and Game Management Research Institute in Prague (Czech Republic), came from the United Nations Environment Programme (UNEP).

ICP-crops: An ICP led by the United Kingdom (at the University of Nottingham School of Agriculture) conducts research to evaluate the effects of air pollutants and other stresses on **agricultural crops**, through a joint exposure experiment on selected sensitive crops organised annually in 13 countries.

ICP-waters: The effects of **acidification on freshwaters** are monitored and assessed by the ICP led by the Norwegian Institute for Water Research, which compiles and intercalibrates chemical and biological data from more than 200 catchments in 17 countries.

ICP-IM: An ICP on **integrated monitoring** of air pollution effects on ecosystems - led by Sweden and supported by the Nordic Environmental Data Centre in Helsinki (Finland) - carries out sampling and analysis on terrestrial and aquatic biota, soils, groundwater and surface waters at 33 integrated monitoring sites, usually in small catchments or other hydrological well-defined areas.

2. Regional co-operation: the Nordic Council of Ministers

Regional co-operation has also been established in the field of air pollution. The Nordic countries suffer from the same types of pollution, and have many common aspects regarding action to solve the problems. The Nordic Council of Ministers was founded in 1971 as an organisation for co-operation between the Nordic governments. The Council of Ministers puts forward motions at the sessions of the Nordic Council, carries out the recommendations at the Council, reports to the Nordic Council on the results of the co-operation and has the ultimate responsibility for the work within the various sectors. Depending on the matters to be discussed, the Council of Ministers meets in different compositions.

The Nordic Council was set up in 1952 to promote co-operation among the Parliaments and Governments of Denmark, Iceland, Norway and Sweden. Finland joined in 1955. Delegations from the Faroes, Greenland and the Åland Islands form part of the Danish and Finnish delegations. The Council consists of 87 elected members (members of parliament). The Nordic Council takes initiatives, acts in a consultative capacity, and monitors and gives an impetus to Nordic co-operation. The organs of the Nordic Council are the Plenary Assembly, the Presidium and the standing committees.

Under the Ministers of the Environment is a committee of high-level officials (the EK-M). Under this group there are different working groups for a variety of topics and their subsidiary bodies, normally *ad hoc* project groups.

A working group on air pollution problems was established in 1984. The main objective of the work on air pollution problems was to strengthen the collaboration between the authorities, and whenever possible co-ordinate or harmonise Nordic policies to put efforts into solving common pollution problems. The workplan has been elaborated as three-year project programmes. The three main fields of work of the project programmes have been:

- long-range transported air pollutants
- air pollution in cities and local communities
- increasing the collaboration and exchange of information between the authorities in the Nordic countries.

Priority has been given to long-range transported air pollutants. Mapping of long-range transported air pollutants needs data for large areas simultaneously, and

this calls for co-operation across national borders. Through Nordic and international projects close collaboration and co-operation between laboratories working on air pollution have been established. In addition, the work going on under EMEP needed further development of both measurements and model calculations. Surveys of the effects of long-range transported air pollutants do not need the same degree of co-ordination in time as air and precipitations surveys, and have therefore been carried out nationally.

Nordic research institutions have been working more on atmospheric inputs and effects and less on cleaning technologies. Cleaning technologies are more "commercialised" than surveys on inputs and effects and they have therefore been worked on in technology-oriented institutes.

3. Bilateral co-operation

More attention during the last decade has been given to the environmental problems in Finnmark, north-eastern Norway, and also on the border area of the Kola Peninsula. The problems in the regions are due to the emissions from two nickel smelters in Nickel and Zapoljarnij at the Kola Peninsula some kilometres east of the Norwegian-Russian border. The annual average of sulphur emissions from these smelters is approximately 190.000 tons and 82.000 tons respectively. The total amount, 272.000 tons of sulphur, is approximately 5.5 times the total emissions from all Norwegian sources. In addition, estimated annual average emissions are 510 tons of nickel and 310 tons of copper. The environmental problems are mainly related to soil and water acidification in Norway, while the problems are more severe with regard to heavy metals on the Russian territory.

This was the basis for establishing a joint Norwegian-Soviet Commission on Environmental Co-operation in 1988. The former USSR responsibilities of the commission were later taken over by the Russian Federation. Under this joint commission several expert groups were established (at present there are eight groups). Three of the most relevant groups in this context are an Expert Group on Local Air Pollution Problems, an Expert Group on Water Ecosystems and an Expert Group on Studies of Effects on the Terrestrial Ecosystems. The task of these expert groups was to identify the pollution problems in the border region between Norway and Russia, and to establish the critical loads and excesses of critical loads, as a basis for planning reduction measures at the smelters.

IV. TOOLS FOR QUANTIFICATION OF POLLUTION PROBLEMS AND AS A BASIS FOR PLANNING

1. Monitoring

Most countries in Europe have national environmental quality monitoring programmes. These programmes normally comprise measurements of emissions and deposition of pollutants (air and precipitation quality and quantity). Often they also include effects of pollutants as studied by water quality and effects on aquatic biota or soil quality and effects on terrestrial ecosystems, usually forests.

The objectives of the monitoring programmes are normally linked to the need for data which can be used as a basis for the planning of measures to prevent pollution and for information to politicians and decision-makers. An increasing awareness of environmental problems, and a general increased interest in pollution and environmental issues among people make the need for information stronger.

Monitoring, in the context of tools for planning of measures, is a long-term collection of data within the accepted hypothesis for cause-relationships with respect to the problem in question. In the design of a monitoring programme for such purposes, one has to define the pollution problem to be solved and which data give the basis for planning and decisions on the measures.

A monitoring programme with the objectives mentioned above has to be built on a commonly-accepted knowledge on cause-effect relationship of the problem, that is:

- it must be founded a scientific basis for the work; on the hypothesis, on the methodology, on the gathering of data and the assessment of the results and on quality assurance.

- whenever problems occur with the interpretation of the data, the assessment should be handled by the scientists.

On this basis a monitoring programme can be designed to assess the geographical extent of a pollution problem, follow trends in the problem, and follow how it may change in time, space and degree depending on how serious the effects are.

The results from the monitoring programme can then be used in planning measures to solve or reduce the pollution problem; to what extent measures are needed

and what the consequences of reduction measures will be in respect of recovery of the environmental quality. Furthermore, the monitoring programme can be used to see if the desired goals of the measures were achieved and if there still is a need for further measures or to assess other kinds of measures, eg repairing activities.

2. International monitoring programmes

There are different international monitoring programmes being run under the auspices of different international organisations. Selected results from the national monitoring programmes are often reported to these international organisations. The following are some of the most relevant programmes to be mentioned in the context of transboundary air pollution:

The results from the **EMEP** measurement programme are reported annually to the EMEP Steering Body. On the basis of these results, it has been possible to produce maps showing how the major air pollutants are distributed over Europe, and how the pollution situation may change from one year to the next.

The results of the modelling work are reported in a similar way. On the basis of the emission data calculated, data on deposition are given in a grid of 150 x 150 km. Furthermore, it is possible to give estimates on the total deposition in the different countries in Europe. Model results and the measurement results are frequently compared to ensure reliability of the deposition data.

The **ICP-forests** gathers and reports data from national forest damage inventories. The grid (16 x 16 km) comprises currently more than 83.000 sample trees on 3.846 sample plots. The results from 1991 revealed that 22.2% of the 83.000 trees had a defoliation larger than 25%, and were thus classified as damaged. The figure for 1990 was 20.8%, thus indicating a deterioration. The results on discoloration, on the other hand, showed a decrease from 13.8% in 1990 to 10.6% in 1991. Deciduous broad-leaved trees seem to have a higher vitality (18.5% of defoliation) than conifers (24.4%).

The **ICP-materials** has looked at the effects on different materials on sites with a wide range of pollution. Not surprisingly, it has found that the corrosion attack is more severe at polluted sites than at rural sites with background levels of pollutants. The effects also vary a lot depending on the different materials, for example, steel and limestone are strongly attacked, while painted coatings are not attacked as strongly.

The **ICP-waters** has to some extent fulfilled some of its short-term objectives, such as establishing the degree and geographic extent of acidification of surface waters. The ICP-waters has contributed to knowledge on dose-response relationship. The relationship between acidic inputs and water chemistry and between water chemistry and effects on aquatic biota have been established. One of the strengths of this programme is the emphasis placed on quality assurance, by performing intercalibration tests on chemistry and biology.

The **ICP-crops** has, through experiments exposing sensitive agricultural crops to different ozone concentrations, contributed to establish critical level values for vegetation. The results from the programme can be used in the preparatory work on a new oxidant protocol.

The **ICP-integrated monitoring** has more long-term goals. The results from this programme will increase the possibilities of understanding the dynamic processes of acidification (as well as other forms of pollution). The results may also contribute to a better understanding of cause-effect and dose-response relationships, enabling to identify sensitive parts of the ecosystems and to set critical load values for these elements.

Another international monitoring programme of interest in the context of transboundary air pollution is the **ATMOS** programme of the Paris Convention. This programme is looking into the deposition of air pollutants in the marine environment of the convention area. The main focus is on heavy metals and nitrogen.

A newly-established programme is the **Arctic Monitoring and Assessment Programme** (AMAP). As the name indicates, it is a circumpolar programme with the participation of the eight countries bordering the Arctic. The contents of the programme are under preparation and will be adopted in May. Focus will be on heavy metals and persistent organic compounds and radioactivity, while acidification and eutrophication have been given lower priority.

3. Models

Another important tool in addition to the monitoring programmes is the use of models. One of the most important models related to air pollution is the EMEP model. It calculates the horizontal transport by the Lagrangian approach. The model is receptor-oriented, with trajectories that are four days long and end up in a selected set of receptor points every six hours. At present there are 1170 arrival points; 147 are measurement sites in Europe while 1023 are points in a rectangular grid with a resolution of 150 km. The model comprises 10 chemical components of nitrogen and sulphur. Through this model it has been possible to give good estimates for transport and deposition of acidifying compounds in the whole of Europe.

Models are also used as a tool on the effects side. Some of the models used in this context are MAGIC and PROFILE, but I will not go into the detail of describing them. These models have been used to describe the historic development from the start of acidification (around 1850), and to predict the future situation. The results from different models predict fairly well the future development of the acidification problem. Through the use of such models it is possible to predict the consequences of different reduction scenarios. For some areas (eg in northern Norway) it has been estimated that recovery is dependent on about a 90% reduction in the emissions from smelter at the Kola Peninsula.

4. Critical loads and levels

The most important tool in the ongoing work on reduction of air pollution is the critical loads and levels approach. The critical load concept was developed during the 1980s as an effort to give a more quantitative description of how big the load of pollutants can be before ecosystems are damaged. International workshops were held in the last half of the 1980s in order to establish the scientific basis and to develop the concept as a tool for decision-makers.

The definition of critical levels is: "concentrations of pollutants in the atmosphere above which direct adverse effects on receptors, such as plants, ecosystems or materials, may occur according to present knowledge.

The definition of critical loads as adopted by the Executive Body of the Convention is:"a quantitative estimate of an exposure to one or more pollutants below which significant harmful effects on specified sensitive elements do not occur according to present knowledge."

The critical load concept was developed during the 1970s and 80s, but the full use of the concept came about in the last half of the 1980s. Scientific workshops were held in 1986 (Norway), 1988 (Sweden and Germany) and 1989 (Germany). During the workshops agreement was reached on the scientific basis for the concept and how to calculate the critical loads and levels. In 1989 in Bad Harzburg (Germany) a manual on the methodology and criteria for mapping critical loads and levels and the geographical areas where they are exceeded, was drafted. The manual describes how to set the critical load for natural ecosystems with different methods and different levels of sophistication.

The work has been followed up through the LRTP Convention, with most emphasis on the critical loads work. The mapping of critical loads has been followed up nationally and internationally, and now 25 Parties to the Convention have participated in the mapping exercise. These joint national activities have resulted in national maps of critical loads for sulphur in forest soils and surface waters in most of Europe and in North America.

The Netherlands has established a Co-ordination Centre for Effects (CCE) in order to assist the Working Group on Effects (and other bodies) with the work on effects, related mainly to mapping critical loads. National data and maps for critical loads and critical load excess have been delivered to the CCE which in turn on the basis of this material has produced the European critical loads/ critical load excess.

In the years 1990 to 1992 the critical load concept and the mapping procedures were developed through the work of the Task Force on Mapping and the CCE workshops. Thanks to these efforts, European critical load maps and maps for their excesses have been produced for different percentiles of total acidity and of sulphur.

The European critical load maps show that the most sensitive areas (ie the lowest critical loads) were mainly found in north-west Europe, with the most sensitive area found in Norway. The reason for this is large areas with thin or no soils and acidic and slowly weathering bedrock. The deposition, however, is highest in central Europe. Still, the excess maps show that the relative excesses are highest in north-west Europe.

The critical load maps for surface waters and forest soils are based on chemical critical values for relevant parameters, Acid Neutralisation Capacity (ANC) and calcium-aluminium (Ca:Al) ratio in soil water, respectively. How do these chemical values compare to damage on biota? Empirical data comparing water chemistry and damage to fish stocks indicate that the surface water criterion (ANC limit value) fit well with the adverse effects observed. Similar relationships for the soil chemical criteria and forest damage is not equally well documented, but there are indications that this criterion is also well chosen.

The Nordic countries are, as the European critical load maps show, among the most sensitive parts of Europe. As such, they show great interest in the work for reducing the loads and much of the co-operation has therefore been aiming at contributions to the work under the Convention. The Nordic countries have been participating actively in the development of the critical load concept through the workshops in Norway and Sweden. Furthermore, Nordic scientists have taken part in preparing the mapping manual, as they have been responsible for much of the scientific basis for the whole concept.

V. PERSPECTIVES

The protocols on emission reductions under the Convention are currently under negotiation, or will be renegotiated in the years to come. A new sulphur protocol will probably be signed this year, while the other two protocols will be elaborated during the 1990s. It has been decided that the second step of the SO_2, NO_x and VOC protocols in principle should be based on the critical load concept.

The renegotiations could be based, for example, on a new flat-rate percentage reduction or the use of "best available technology", BAT. The disadvantages of these two approaches are obvious: neither are cost-effective or fair to countries already having taken measures.

A flat-rate percentage reduction will favour those countries which have done little to reduce their emissions. Some countries have already reduced their emissions substantially and would have to go to very expensive measures, which might not even help to improve the situation. The BAT approach will lead to efficient measures for new sources of emission, but one would have to solve/agree on the problem with existing sources. In addition one would have to agree on a definition of BAT, which now seems to have a slightly different meaning in different countries.

The maps from the critical loads exercise have been handed over to modellers in the Task Force on Integrated Assessment Modelling (TFIAM) and the International Institute of Applied System Analysis (IIASA) who are also assisting the Executive Body and subsidiary bodies in the abatement planning. By using economic and other models it is possible to come up with the most cost-effective ways of reduction. This will lead to reductions that actually will reduce much of the excess deposition in Europe, in areas where damage is done.

It will not, however, be possible to reduce all emissions to such a degree that the critical loads are not exceeded in some parts of Europe. One solution that seems to gather interest is a proposal of gap-closing, which means that the excesses should be reduced by the same percentage for all countries. This solution means that all countries will have to look at their own emissions and take measures, as these emissions are among those causing problems with critical load excesses nationally. This will lead to substantial overall reductions of the European emissions. The proposed solution may also include rules giving possibilities for trade with emissions.

The problems of acidification will not be solved by the second step of the sulphur protocol, and European society will have to live with this problem for several years. If successful, the critical loads approach will form the basis for the next protocols to be renegotiated. Then a more "effective" protocol might combine the sulphur and the nitrogen protocols into one "acidification" protocol, or nitrogen and VOCs could be put together as an "oxidant" protocol. It is still too early to decide. Whatever the outcome of the negotiations, the mapping exercise will not have been carried out in vain. The results, the critical load and the critical load excess maps from this joint exercise, may be used nationally and even internationally as a basis for evaluation and planning of countermeasures to improve the damage situation when the consequences of a new protocol, with respect to emissions, is known. These countermeasures may include liming or raising fish stocks that are more tolerant to acidification. Thus the maps may be used to identify areas that can be restored in a more cost-effective way. The maps may also be used to pinpoint areas which cannot be restored.

The work in the Nordic Council of Ministers on environmental issues has recently been reorganised. The newly-formed working groups will still put most efforts into work on the different conventions for the prevention of pollution. It is therefore unlikely that the work will be very different from what it was before.

A new aspect of Nordic co-operation, however, is the greater focus on the situation in the Baltic countries. It is likely that the future might see a closer co-operation with these countries, and steps have already been taken to establish closer contacts on environmental monitoring. A Nordic finance fund for joint venture operations in former Eastern Europe has also been set up. It is still to early to tell what the results from this work will be.

The Nordic countries, mainly Finland and Norway, have taken steps towards Russia to help funding the rebuilding of the nickel smelters at the Kola Peninsula. Technical assistance from the Nordic countries has also been offered. Rebuilding these smelters will be expensive, and the negotiations between the countries are in a difficult phase at the moment.

An aspect for future co-operation is the newly formed "Barents" region. This "Barents" region comprises much of the Kola peninsula and northern parts of Finland, Sweden and Norway. It is rich in resources, and the new political situation may lead to an increase in trade and also in co-operation on environmental issues in the area. According to the statements from leading politicians in these countries, emphasis will be put on the major environmental problems in the Kola Peninsula and common efforts will be made to improve the situation relating to environmental problems.

CO-OPERATION FOR A BETTER ENVIRONMENT IN BORDER REGIONS: IMPROVEMENT OF THE ENVIRONMENT AND ESPECIALLY TRANSBORDER POLLUTION MONITORING AND CONTROL WITHIN COMMON REGIONAL DEVELOPMENT CONCEPTS

Current problems and possibilities in transborder regional/spatial planning

Mr Václav HAVLIK
Ministry for the Economy
Prague

A. THE NEISSE EUROPEAN REGION

1. Location

The Neisse European Region (ERN) covers three border regions lying in the heart of Europe on the territory of Germany, Poland and the Czech Republic.

The region has a surface area of about 11,800 sq km and about 1.6 million inhabitants. Its various zones have many interests in common arising from their geographical situation, a shared environment, their character and history, and similarities in many aspects of their economies.

Given the present administrative organisation of the three countries (situation in July 1992), the various parts of the region are delimited as follows:

The Polish part of the ERN is composed of the towns and villages located on the territory of Lower Silesia in the province of Jelenia Gora. It has an area of 4,380 sq km and about 520,000 inhabitants. It is essentially a region of ago-industries though tourism and services play a very important role in its economy owing to the attractive landscape (the Jizerske Mountains and the Karkonesze Giant Mountains). In the south-western part of the region lignite is mined in open pits for the production of electricity.

The Czech part of the ERN includes the municipalities and towns of northern Bohemia - the districts of Liberec, Jablonec nad Nisou, Ceska Lipa and parts of Decin and Semily. The area concerned is 3,000 sq km and has 420,000 inhabitants. It is mainly industrial (mechanical engineering, glass and textiles) but it is also a very attractive region for tourism (the Jizerske Mountains, the Luzicke mountains of Lusatia (Lausitz, the Jested ridge, Bohemian massif, the Cesky Kraj known as the "Bohemian Paradise" and the region of Frydlant).

The German part of the ERN extends over the territory of Upper Lusatia (OberLausitz) and part of Lower Silesia. It includes the districts of Bautzen, Bishofswerda, Hoyerswerda, Kamenz, Niesky, Löbau, Zittau, Weisswasser, Görliz-Land and the city district of Görlitz. It covers 4,380 sq km and has 725,000 inhabitants. The economy of this part of the region is based on the textile and clothing industry, mechanical engineering and especially the open cast mining of lignite and production of electricity. Like the Polish and Czech parts of the ERN it also contains attractive areas for tourism in the Zittau mountains and in the lakes and heather-covered slopes of Upper Lusatia.

The whole region bears the traces of a common history stretching back several centuries; the trade route has always passed from north to south along the valley of the Neisse and there have always been close relations between Upper Lusatia and the crownlands of Bohemia, etc.

The exceptional character of the ERN's situation today is due to the fact that it straddles the boundary between the European Community and two countries of central Europe. It is indubitably a territory in which new relations between Community countries and the other countries of central Europe will develop.

2. Organisational structure of the region

Municipal leaders from all three countries have played a fundamental role in establishing the ERN and its co-ordination office in Zittau. An association of municipalities in the three countries has been set up. This association elects its governing bodies - the congresses of representatives - from among which ten members representing each part of the region are elected to the ERN Council. The latter is directed by a "presidium" of three members.

The ERN Council, acting through its secretariat, manages and co-ordinates the work of "working parties" set up to find practical solutions to current problems. At present, the following working parties have been or are in the process of being established.

Working party no. 1:	Environment and energy
Working party no. 2:	Planning, transport, tourism, regional communications
Working party no. 3:	Culture, education, youth, protection of historic monuments
Working party no. 4:	Economy and agriculture
Working party no. 5:	Protection against disasters and public safety
Working party no. 6:	Health and social problems
Working party no. 7:	State authorities and self-government

The Neisse European Region is a member of the Association of European Border Regions (AEBR).

Objectives and priorities of the ERN

Objectives:

1. To overcome the limitations imposed by state boundaries.

2. To raise the standard of living of persons living in the ERN.

3. To improve the living conditions and cultural life in the ERN.

4. To develop the economic potential of the ERN.

Priorities:

1. To work out a regional economic development plan for the ERN.

2. To ease transborder communications for regional and transregional transportation and to respond to the development of tourism.

3. To prepare a joint programme for environmental protection.

4. To set up a joint computerised communications network linking the different parts of the ERN (Liberec/ Jablonec nad Nisou - Jelenia Gora - Zittau).

Priority 1

At present, the main efforts in the economic field are aimed at fostering the development of small- and medium-sized firms. To this end, attempts are being made to draw upon the experience of European Community countries (in particular that of the *Länder* of the former Federal Republic of Germany).

Priority 2

In regard to easier transborder communication, it has to be admitted that hardly any progress has been made as yet despite the enormous efforts of the ERN institutions; this is largely due to the many technical difficulties encountered in setting up new bodies.

Priority 3

As regards improvement of the environment, it may be mentioned that resources have been obtained to establish a network of stations to monitor the state of the atmosphere. The ERN is in the "black triangle" of Europe, which is bounded in the Czech Republic by the districts lying between Sokolov and Trutnov, in Germany by the administrative districts (Regierungsbezirke) of Chemnitz and Dresden, and in Poland by the provinces of Jelenia Gora and Walbrzych.

After the reunification of Germany, the state of the forests in the mountains of Lusatia, Jizerske mountains and the "Karkonesze" Giant Mountains has improved owing to a decrease in pollution as a result of drastic cuts in the production of electricity by the thermal power stations of East Germany. The Hirsshfelde power station has virtually ceased operation while the others (Hagenwerder, Boxberg, Jänschwalde, Schwarze Pumpe) are operating at only about 50% of their capacity.

In the Czech part of the ERN, a joint water purification plant is being built for the Liberec-Jablonec conurbation and should be completed in June 1994. When it comes into operation and provided that waste water standards are strictly observed by industrial firms, there will be a distinct improvement in water quality in the Neisse river basin.

The treatment of waste water evacuated into the Mandava river (Varsndorf water purification plant), the Smeda (Frydlant water purification plant) and the Neisse

at Hradek nad Nisou is in progress. The Varnsdorf plant will also serve Seifhennersdorf in Germany and later Rumburk.

Priority 4

As regards the setting up of a joint computerised communications network, financial resources have been allocated.

Development planning studies for the ERN will be based on a common map to be prepared at a scale of 1:100,000. In 1992, each country prepared an analysis of the "Regional Plan", which will be supplemented in 1993 for all three countries by further study of three problem areas:

- ecological problems, local cultural values, state of the environment;
- social and economic problems;
- transport and technical infrastructure.

A co-ordination meeting of participating countries will take place in February 1993 at Liberec in the Czech Republic to take stock of the situation and decide on the next step.

B. PROJECTS IN THE ODER-SILESIA REGION

These projects concern regional/spatial planning and policy in Czech Silesia (Ostrava - Karvina coalfield), Polish Silesia (Katowice region) and the whole of the Oder river basin.

a. The Oder project

This project, which concerns the Czech Republic, Poland and Germany, forms part of the vast programme to protect the Baltic Sea area. Its objective is to examine all environmental problems affecting the Oder basin and to identify the sources of Baltic pollution from the Oder river.

The technical analysis, which is almost ready, will form part of a final report, known as the "Common Programme" on the future of the environment in the Baltic region. This Programme to protect the environment of the Baltic Sea area will become a basic text for all the participating states in the Baltic region and for the Oder Commission whose members will be the Czech Republic, the European Community, Germany and Poland. Although the Czech territory concerned by the project is relatively small (6% of the Oder basin, ie 7,386 sq km), the transformations entailed are of fundamental importance since Ostrava has been identified as a key area that could make a substantial contribution to improving the state of the environment in the Oder river basin.

b. The Silesia Project has been launched by the World Bank as part of a general study of the environment in the Czech Republic and its activities in Poland. The project, which is being planned simultaneously in the Czech Republic and Poland, has the following objectives:

- a detailed assessment of dangers to the environment in the territory concerned (impact on the health of the population, international effects, etc);
- identification of the source of the dangers and assessment of their gravity;
- definition of alternative strategies aimed at reducing the sources of pollution;
- formulation of optimal solutions that take account of the complex factors involved: ecological efficiency (ie reduction of identified hazards), economic advantages (ie contribution to economic restructuring and revival in the model region) and socially acceptable burden (especially impact on number of jobs).

The first phase of the project (identification and assessment of dangers to the environment) was planned in 1992. At present the Polish part of the project's first phase is being evaluated; after completion of this evaluation, an international Czech-Polish steering committee including representatives of the World Bank and United States Environment Agency will be set up.

The entire project is scheduled to be completed in the second half of 1994; its purpose is to propose measures designed to improve the quality of the environment.

In addition to activities focused directly on environmental problems, certain bilateral projects whose results could have a significant impact on the quality of the environment are being carried out in the region. One of the most important is the DATAR project, which has the following aims:

- a general, social and economic analysis of the Ostrava-Karvina conurbation (data on population, territory, enterprises and public sector);
- formulation of recommendations designed to increase the efficiency of reconstruction projects in the Ostrava-Karvina conurbation.

Another project, focused on Czech Silesia, concerns the "Rehabilitation of territories devastated by coal mining

in the Ostrava-Karvina coalfield". Its purpose is to work out a practical policy for the renovation of areas blighted by the mining and use of coal. This project also covers the preparation of other projects aimed at dealing with the consequences of mining-related activities in the region.

The gradual attainment of all the objectives aimed at improving the natural and human environment call for the preparation and approval of a Master Plan for development and town planning that lays down the conditions under which all the projects on hand will be carried out.

The Master Plan for development and town planning should also lay down conditions for the mining and use of coking coal and for the acceptable development of mines and the chemical industry.

Throughout the district the conception of town planning is to a great extent based on the requirements of economic development, but it is also largely determined by development in the past. It is accordingly essential gradually to close down the numerous pits in the central part of the coalfield, which cannot be kept working because of the harm they cause. In Poland, it is important to solve the environmental problems but also the problems of transportation, especially co-ordination between the different arteries. The Ostrava-Karvina conurbation is traversed by the most important routes linking Poland to the Czech Republic, Austria and the countries of southern Europe.

The rail network needs to be modernised and its capacity increased.

The road network will be linked up to the main highway (the D 47 motorway) leading to the Upper Silesia Basin in Poland.

Despite the opposition of ecologists, discussion is continuing on the building of the Oder-Danube canal, for which a possible route is included in the Master Plan for development and town planning.

In view of the strategic importance of the Ostrava-Karvina conurbation and of the areas adjacent to the Polish border, the draft version of the Master Plan will be co-ordinated with the Polish authorities before being submitted to the Czech Government for approval.

CO-OPERATION FOR A BETTER ENVIRONMENT IN BORDER REGIONS: IMPROVEMENT OF THE ENVIRONMENT AND ESPECIALLY TRANSBORDER POLLUTION MONITORING AND CONTROL WITHIN COMMON REGIONAL DEVELOPMENT CONCEPTS

Mr Gérard GINESTE
Commissioner
Commissariat à l'aménagement et au développement économique des Alpes
Grenoble

1. INTRODUCTION

Over the last ten years the context in which regional/ spatial planning policies are set has undergone two major changes that reflect a move in the policy of state governments towards greater European integration, increasing social concern for the quality of the environment.

- Instead of focusing on the national dimension, spatial planning policy decisions must now take the international dimension into account.

- The increasing concern of citizens to protect and improve their living environment has led to a new approach to development better suited to inter-generation management and the forward-looking management of resources: sustainable development or eco-development.

1.1 From spatial planning on a national scale to spatial planning on a European scale

Hastened along by the institution of the Common Market, and subsequently by the Single Market and the European Economic Area, the Europeanisation of national economies has broadened the outlook of spatial planning.

The differences in levels of development within the Community area have led to the implementation of a Community regional policy.

The need for coherency in national and regional planning is increasingly widely felt, and has led to various projects on a European scale, such as the high-speed rail network. At the same time, planning studies have been launched by the Community, under the *Europe 2000* programme, covering a number of trans-regional zones, including the Alpine arc.

1.2 From spatial planning to sustainable spatial planning

Initially, the purpose of regional/spatial planning was to correct the imbalance between highly developed and declining regions; there were two guiding principles: the redistribution of the benefits of growth, and national solidarity.

In order to make the relocation of activities more credible in the eyes of economic decision-makers, a policy of creating structural facilities, particulary road infrastructures, was implemented to link up the main economic basins.

In this scheme of things, the development model based on uncontrolled growth and consumption of resources was implicit in spatial development strategies.

Gradually, the negative effects of concentrating activities in too small an area became apparent, in the form of both congestion and depopulation harmful to the natural environment, until a new approach to spatial

planning, integrating the notion of sustainability, was born.

In the spatial development context this notion of sustainability embraces at least two objectives:

- making the economic, social and cultural bases of economic development last by forward-looking management of attractive features (quality of sites, quantity and quality of natural resources, quality of the built heritage, etc), particularly in areas that thrive on tourism;

- lasting social and regional cohesion, so that regions which are not sufficiently developed to use their advantages to the full are not left behind.

This new awareness of the need for sustainable development is a reflection of strong new socio-cultural currents geared to three main notions:

- *vitality, autonomy and good sense.*

This in turn has brought increased awareness of the unacceptable cost to society of further development in already densely built-up areas, and of the renewed attraction exerted by spaces set in a quality environment.

2. THE ENVIRONMENT

Environmental considerations are increasingly important to citizens, particularly in areas of high-density activity and housing.

Growth has brought about the degradation of natural environments and increasing pollution that spreads far beyond the source.

Apart from the cost of pollution control and the restoration of damaged natural environments, the toll this damage takes on the environment in which people live is one of the factors that determine whether or not economic activities move away from these areas of over-dense concentration.

At the same time, regions behind in their development are basing their strategies on the attractions of relocation sites that offer a high quality of life, a healthy environment and an attractive heritage. These regions must not forget, however, that they need to protect these assets if they are to remain attractive and their development is to continue in the long term.

The effects of pollution and environmental damage reach out far beyond the original source: this is the case of atmospheric pollution by carbon monoxide and sulphur dioxide (largely due to motor vehicle exhaust emissions), of the pollution of surface and underground water, and of the transport and treatment of waste.

This mobility of pollution and environmental damage, linked largely to the intensity of economic development, necessitates the implementation of transfrontier co-operation policies establishing an objective of sustainable development between the contracting parties.

These transfrontier policies are a part of much broader policies, such as the environmental policy of the European Community, and take into account national policies, between which there is often little co-ordination.

3. CO-OPERATION IN TRANSFRONTIER REGIONS FOR A BETTER ENVIRONMENT: THE EXAMPLE OF THE CONVENTION ON THE PROTECTION OF THE ALPINE ARC

3.1 Some background information on the Alpine arc

The central situation of the Alpine arc within Europe has considerably increased the flow of goods transported through it, which increased from 27 million tonnes in 1970 to 56 million tonnes in 1985. The figure is expected to double again by the year 2000.

Carbon monoxide emissions and ozone concentrations have reached excessive levels in certain parts of the Alpine arc.

What is more, the availability of certain raw materials and of hydro-electric power have encouraged the development of a highly dense industrial fabric in certain valleys. In particular, the use of hydro-electric power has led to most Alpine rivers being harnessed for power generation.

Only the valley bottoms were really suitable for the development of housing, economic activities and transport infrastructures: lack of space, and competition between different activities have now made much stricter management of space and land necessary.

Finally, the quality of the natural heritage, the mountain scenery and the climate have contributed to the development of a thriving tourist industry, the Alpine arc alone accounting for a quarter of the turnover of the world tourist trade, with one hundred million tourists per year, providing direct or indirect income to 70% of the local population.

These combined pressures on the natural environment, together with the increase in through traffic, sounded the alarm that led to the drafting of the Convention on the Protection of the Alpine Arc in 1991.

3.2 The issues at stake in the Alpine Convention

Largely due to the efforts of nature conservation organisations, the finite dimension of this natural heritage finally dawned on local people and visitors alike, leading to greater concern to reconcile the conservation of an exceptional natural heritage with sufficient development to satisfy the needs of the resident populations.

The gradual disappearance of borders, the internationalisation of trade, the intensification of scientific and cultural co-operation all help to forge a collective regional interest in sustainable development.

Seen through the eyes of non-residents, the Alps are an immaterial capital that makes the region increasingly attractive, particularly as far as the key activity of tourism is concerned.

Although there are striking contrasts from one part of the region to another (the Tyrolean image is quite unlike that of the French Alps), it is increasingly important that the overall image be managed jointly by all the populations who live there. The region's power of attraction is largely linked to the diversity of its cultures and its natural environments.

The Alpine populations must learn to improve and project the image of their region, and to refurbish it when necessary: the Alpine people must learn to control the destiny of their region. By asserting the need for sustainable development and protection of the heritage, they reduce the likelihood of the fate of the Alps falling into the hands of outsiders who might consider the region as a sanctuary and shoulder the local inhabitants with the burden of protecting it.

Allowance should therefore be made in national and international policies for the specific rights and needs of the Alpine territories.

3.3 How the convention came about - the institutional dimension

In 1986 the International Committee for the Protection of the Alps (CIPRA) submitted a scheme to the Ministers of the Environment of the countries of the Alpine arc (Germany, Austria, France, Italy, Liechtenstein, Switzerland, Slovenia) for an international treaty to protect the Alps.

At a conference held at Berchtesgaden in October 1989, at the invitation of Germany, these ministers and the European Economic Community adopted a resolution to begin work on a framework convention on the protection of the Alps.

After two years of negotiation, under the chairmanship of Austria, the framework convention was signed on 7 November 1991 in Salzburg at a second ministerial conference convened for this purpose.

The convention is an international treaty and the instruments of ratification are to be deposited with the Republic of Austria.

The convention proper defines objectives, principles and obligations of a general nature, leaving precise targets and the means of achieving and assessing the results to be established in separate protocols to the convention.

Early on in the negotiation of the convention, five priority fields to be covered by protocols and set in motion under the chairmanship of one of the signatory states were identified:

- *protection of nature*	- *under German chairmanship*
- *transport*	- *under Swiss chairmanship*
- *mountain agriculture*	- *under Italian chairmanship*
- *tourism*	- *under French chairmanship*
- *regional-spatial development*	- *under French chairmanship*

During this preparatory phase, as well as representatives of the contracting parties, the groups formed also included representatives of non-governmental organisations and of the Council of Europe.

The proposals submitted by the national groups of experts set up for each protocol were examined, and their conformity with the objectives of the convention was studied by the group of senior officials representing the contracting parties at their last meeting on 5 and 6 November 1992 at Chambéry.

These draft protocols are currently being examined by the contracting parties with their local and regional authorities and socio-occupational organisations.

This consultation phase is an essential part of the negotiation process in so far as a consensus of the local and regional authorities and economic agents concerned will guarantee the success of the convention and its effective implementation. It should lead to the signature of the protocols at a third ministerial conference towards the end of 1993.

Subsequently, three further protocols currently in preparation (mountain forests, energy, soil protection) will go through the same process.

3.4 The objectives of the convention, implementation through protocols

3.4.1 General obligations enshrined in the convention

The general objective

- In keeping with the "polluter pays" principle and the principles of prevention and co-operation, the contracting parties will ensure a comprehensive policy to preserve and protect the Alps, giving due consideration to local interests while using resources in a discerning and sustainable manner.

- Transfrontier co-operation for the benefit of the Alpine area will be intensified and extended both geographically and thematically.

Appropriate measures must be taken:

- To guarantee:

. the protection and promotion of cultural and social identity,

. the fundamental resources of the region (habitat, environment-friendly economic development),

. the development of co-operation between the population of the Alps and the extra-Alpine regions.

- In favour of regional/spatial development ensuring:

. rational and sparing use of land,

. sound and harmonious development through planning and the prevention of extremely high or extremely low concentrations of activities, and by protecting and restoring natural habitats.

- To improve the quality of the air.

- To protect the soil by appropriate farming and forestry methods.

- To restore and protect the natural quality of water and hydro-systems.

- To protect nature and preserve the landscape, including restoration.

- To promote mountain farming practices compatible with the environment, integrating the economic constraints of this activity into the Alpine space.

- In favour of mountain forests.

- In favour of tourism, to make sure this activity is compatible with ecological and social constraints.

- In the transport field, to limit the nuisances and pollution generated, *inter alia* by encouraging use of rail transport.

- Finally, measures should be taken in connection with energy and waste disposal.

In all these areas research work, assessments and observation must be conducted in a well co-ordinated manner in order to develop a system for monitoring the Alpine arc, and thereby provide a basis for policy development and assessment. This collaboration also concerns the exchange of legal, scientific and economic information, and involves keeping the public regularly informed.

3.4.2 Application through protocols

Under the terms of the convention, arrangements for its implementation are to be made by protocols. Five protocols on specific themes are currently being examined at the national level by the contracting parties (cf above).

They are generally laid out in two parts: one concerning compulsory measures, the other, recommended measures.

Because of the different states of advancement of relevant national legislation, and of the different political and administrative systems and the national interests at stake, drafting the protocols is proving difficult.

There were two possibilities. The first was to base the protocols on the lowest common denominator, which would have brought little if any significant progress. The other possibility was to base the content of the protocols on the most exacting national legislation, even though this might make it difficult for some contracting parties to adhere.

Between these two extremes, the chairmen of the theme groups strove to reach a consensus on a general form of progress binding on all the parties concerned, but leaving each party free to take more restrictive measures if it so desired.

4. PROPOSALS FOR DEVELOPING TRANSFRONTIER CO-OPERATION IN THE ENVIRONMENTAL FIELD

The different stages of development of the regional economies concerned, the diversity of the legal, political and administrative systems in the Alpine area, and the

state of advancement of the monitoring system and the research programmes are all obstacles to the smooth pursuit of co-operation.

Three measures seem likely to contribute to progress in this respect:

4.1 Setting up observation systems on a suitable scale

The legal framework provided for politicians by the convention is incomplete without a decision-making aid to help formulate policies for its implementation.

The different contracting parties all have their own measuring instruments and assessment criteria, generally designed with national or local needs in mind.

It has now become essential to define the content of a master plan for the environment and socio-economic development.

This means defining representative parameters, the geographical scale of reference, the authority responsible, how the different information gathered should be collated and analysed, and the degree of independence with regard to the public authorities.

There are two rival options: a centralised system, or a network-type structure using existing partners and systems.

Care should also be taken in defining this monitoring system to make allowance for the establishment of the European Environment Agency, even though some of the parties to the convention are not members of the European Community.

Under the French chairmanship of the convention, a group of experts was formed to make proposals in view of the creation of a special observation system for the Alpine arc.

4.2 Defining and implementing transfrontier research programmes

Designed to give a clearer picture of the issues at stake in the Alpine area and to enlighten political decision-makers, research programmes are usually developed at the national or regional level, with the exception of those launched at the initiative of the European Community.

Furthermore, there is no data bank on the results of research or on current research programmes, with the exception of the RESALP databank run by the University of Grenoble.

4.3 A suitable legal co-operation framework for the public partners: the European public interest group

Most transfrontier co-operation activities are carried on by the public authorities: local and regional authorities and different combinations thereof.

Provision may be made in national legislation for legal structures to accommodate co-operation between public authorities at different local and regional levels; this is the case in France, where the powers of the "*groupement d'intérêt public*" (or public interest group) have been extended to cover decentralised international co-operation.

There is as yet no legal framework, however, for co-operation between public authorities at the local and regional level in different states.

The "European public interest group" formula would facilitate this type of co-operation and provide a suitable legal framework for technical and financial partnerships.

CO-OPERATION FOR A BETTER ENVIRONMENT IN BORDER REGIONS: IMPROVEMENT OF THE ENVIRONMENT AND ESPECIALLY TRANSBORDER POLLUTION MONITORING AND CONTROL WITHIN COMMON REGIONAL DEVELOPMENT CONCEPTS

Finnish experience of co-operation for a better environment in neighbouring eastern and southern regions

Mr Timo LAUKKANEN
East Europe Project
Ministry of the Environment
Helsinki

Finland has Sweden as its western and Norway as its northern neighbour. In the east there is Russia and in the south Estonia - two countries in transition from communism to a market economy. There is goodwill and understanding between Finland and her Russian and Estonian counterparts, yet this is a great challenge for Finland in many respects, not least in environmental co-operation.

Finland has a long tradition of co-operation for a better environment across her eastern and southern borders, although most of the documentation consisting of formal agreements was introduced during the 1980s. Progress has been extremely rapid. From scientific co-operation in the form of separate studies and exchange of delegations, Finland, Russia and Estonia have in less than ten years achieved organised environmental co-operation for their mutual benefit.

Finland's environmental policy in Eastern Europe

The government of Finland has a particular strategy for Eastern and Central Europe, with specific budgetary resources to support economic transition in these countries. Co-operation in the field of environmental protection occupies a central position in this strategy, the emphasis being on better air pollution control, protection of the Baltic Sea and development of hazardous waste management.

In connection with the strategy, a comprehensive Environmental Review and Priority Action Programme for Estonia, St Petersburg, the Leningrad region and Karelia was launched in 1991 by the East Europe Project of the Ministry of the Environment of Finland. The aim of this work was to define the main environmental problems and recommend measures to reduce them.

In co-operation with Russian and Estonian specialists, sixteen out of sixty significant problem areas were chosen as targets for the Priority Action Programme: eight projects in St Petersburg and the Leningrad region, four in Karelia, and four in Estonia. These projects are related to air pollution as well as to water pollution and waste management. As part of the Environmental Review and Priority Programme, separate pre-feasibility studies for each of the sixteen priority objects were prepared to promote project preparation.

The implementation of this Priority Action Programme is now under way, and it is expected to take at least ten years.

The Finnish East European Environmental Strategy is also closely connected with the implementation of the Baltic Sea Environmental Action Programme and could well form a part of the Pan-European Environmental Action Programme for Central and Eastern Europe.

Because of the scarce financing possibilities, it is widely understood that co-ordination is very important in all bilateral and multilateral efforts to improve the environmental situation in Central and Eastern Europe. These two programmes help different countries and institutions focus their efforts and resources in a more effective way, and simultaneous and overlapping work can be avoided. For this reason, Finland has also been active in

the preparation processes for both the Baltic and the pan-European programmes.

Environmental projects in neighbouring regions

In order to implement the East European Environmental Strategy, the Ministry of the Environment of Finland set up in October 1990 the East Europe Project, which aims at catalysing investment in environmental protection and provides funds for Finnish companies and institutions for joint investment projects and pilot schemes as well as for technical assistance and training in north-western Russia and the Baltic countries.

Promotion of environmental projects takes place in close co-operation and co-ordination with the governmental environmental authorities in the respective countries through frequent meetings and exchange of documentation. At the same time all kinds of direct co-operation across the border between local and regional authorities, institutions and companies is encouraged.

The implementation of the sixteen projects chosen for the Priority Action Programme is estimated to cost approximately 15 billion FIM (approximately 2.1 billion ecus), out of which the local costs are approximately 9 billion FIM (approx. 1.3 billion ecus). It is hoped that as a result of this programme, sulphur deposition will decrease by more than 10% in some parts of eastern and southern Finland, and in the whole Gulf of Finland the environmental load will decrease by about 35% in the case of biological oxygen demand and by about 45% for phosphorus.

Although these sixteen projects occupy a special position, all project propositions with major environmental impact are carefully studied and if possible supported technically and financially. Projects that will contribute to new environmental technology being introduced in Russia and Estonia, especially in the form of joint production, are also encouraged and supported. Second-hand equipment and spare parts have been delivered mainly as first aid to municipal water and sewage utilities, but also for waste treatment.

Most of the investment projects being implemented are relatively small pilot projects or first phases of larger projects. The biggest projects concern sulphur and dust removal in the Kostamuksha mining combinate in Karelia, desulphurisation processes in the Narva and Iru power plants in Estonia, and improvement of biological waste water treatment in Tallinn. As a result of these projects now being implemented, the transboundary sulphur dioxide deposit will be reduced by 25,000 tonnes per year and the organic waste load from Tallinn on the Gulf of Finland will be reduced by 25 tonnes per day, which corresponds to the load from 300,000 people.

In waste management, oil-combating equipment is now being supplied as a first phase of the St Petersburg hazardous waste management sub-programme.

Finnish support for the improvement of the safety of nuclear power stations in adjacent regions is co-ordinated by the Finnish Centre for Radiation and Nuclear Safety. The main emphasis is on improving control systems. Russian nuclear power stations in neighbouring regions have also been equipped with satellite connections so as to provide for immediate information in case of accidents.

Bilateral project financing

During the first two years of programme implementation, Finnish government subsidies have been used for 29 investment projects and over 100 technical assistance and training projects. The Ministry of the Environment has granted as investment support 89 million FIM (approx. 12.7 million ecus) and 25 million FIM (approx. 3.6 million ecus) for technical assistance and training.

The programme is carried out on the basis of commercial contracts between the companies and institutions concerned. The projects are primarily funded locally and use as much local labour as possible. The Finnish government may provide grants of up to a maximum of 50% of the foreign currency costs. In the case of pilot projects for the introduction of new technology and methods, the maximum subsidy is 80% of foreign currency costs.

Another form of financial support is interest subsidies payable for loans guaranteed by the Finnish State Guarantee Board. The Board has the right to give up to 3 billion FIM (approx. 0.4 billion ecus) guarantees for environmental investments in Eastern Europe.

However, because of the lack of counter guarantees, it has not yet been possible to use these loans and interest subsidies. But it is assumed that this form of environmental investment support will play a very important role in the future, especially in large projects having several sources of finance and guarantees.

The Finnish Export Credit Ltd. and the Finnish Fund for Industrial Development Co-operation Ltd. (FINNFUND) are also interested in financing environmental projects in neighbouring regions. In addition to credit financing, FINNFUND can also participate in joint ventures as a minority shareholder.

All local and foreign currency financing in projects under implementation, except Finnish governmental subsidies, has been organised by the East European partner. In industrial project financing, the local and foreign currency share of the East European partner is mainly derived from the company's foreign earnings, but barter deals have also been used for financing costs in foreign currency.

Municipal projects have been more complicated because of the lack of foreign currency earnings. In spite of this it has been possible to organise financing, even for some quite large projects, by combining governmental, municipal and company budgets. A very good example of this is the Tallinn waste water treatment project where the total project cost is 31.6 million FIM (approx. 3.5 million ecus). The government of Estonia, the town of Tallinn and the Tallinn Water and Sewage Company pay altogether 70% of the total costs.

Multilateral project financing

It has always been widely understood in Finland that international financial institutions must be involved in project preparation as early as possible. Co-operation with international financial institutions plays an important role in the activities of the East Europe Project.

The Nordic Investment Bank (NIB), the associated Nordic Environment Finance Corporation (NEFCO), and the Nordic Project Export Fund (NOPEF) are most strongly involved in Finnish environmental project financing.

The Nordic Investment Bank can grant loans for projects carried out jointly by Nordic companies and is increasingly financing investments in the environmental sector within the Nordic countries. It has also been very active in environmental projects in Eastern Europe, where the bank has the right to finance projects carried out by one Nordic company when project implementation has a substantial environmental effect.

NEFCO can in addition to loans and guarantees also become a shareholder in joint ventures. Projects must be feasible both with regard to technology and economics. This is investigated by means of feasibility studies.

NOPEF works in close co-operation with NIB and NEFCO and specialises in feasibility study financing on favourable terms for environmental projects in Central and Eastern Europe.

Co-operation with IBRD, IFC and EBRD has recently become livelier, especially as regards projects in Estonia and St Petersburg.

There are trust funds earmarked in NIB, IBRD, IFC and EBRD for project preparation. These are supplied by the Finnish government through the Ministry of the Environment of Finland. This money is mainly used for feasibility and other studies needed for environmental project preparation.

It is assumed in Finland that the role of world-wide international financial institutions, such as EBRD, IBRD and IFC, will be of great importance in the future. Finnish government grants supplied through the Ministry of the Environment and focused by the East Europe Project will increasingly be used to soften financial packages consisting of payment in hard currency, barter deal deliveries and loans with guarantees from various institutions.

Training

Training is an extremely important part of co-operation for a better environment in the neighbouring regions. It is concentrated on environmental protection legislation and administration, financing, project supervision, air and water pollution control and waste management.

The main target groups are specialists from environmental administration and training institutes, representatives of municipal environmental facilities, industry, the energy sector, and agriculture.

To a large extent training focuses on providing the required know-how for environmental investment ventures connected with projects supported by the East Europe Project, but policy reform and institutional strengthening also play a very important role in training, especially in programmes for administrative personnel.

Training is mainly organised for small groups of key persons from different sectors. The most important criterion when selecting specialists for training is how they will be able to utilise and disseminate the knowledge and skills learned during the training period.

Most of the training is organised by Finnish training institutions in St Petersburg for Russian and in Tallinn for Estonian specialists. Visits to Finland are organised when necessary to support the training.

In addition to mutually agreed training programmes for Russian and Baltic specialists, approximately 30 on-the-job trainees have been working each year in Finland.

Training costs are as a rule divided so that the Ministry of the Environment of Finland covers convertible currency costs and the recipient country covers local currency costs.

Regional environmental co-operation

The Ministry of the Environment supports regional environmental co-operation between authorities, industry, institutes and those involved in environmental research. In addition to visible results this co-operation aims at helping solve environmental problems on the basis of local initiative. Another important aim is to activate people and generate environmental motivation.

Regional co-operation started only a couple of years ago and suitable forms and institutions for this co-operation are still being developed. As a result some joint working groups have already been established in the border region.

Most of the co-operation has taken the form of research and training, for which the Finnish Ministry of the Environment has provided technical and financial support. In the future the main responsibility for implementation and financing should be borne by the regions themselves.

Co-operation in environmental monitoring

Environmental monitoring is also a substantial part of border region co-operation. Traditionally it has without any major problems engaged different local and governmental institutions on both sides of the border.

The basic needs in Finland and our neighbouring countries include information about transboundary air and water pollution and information about the changes brought about by environmental technology investments. The possibility of combining information from different sources is important in defining the extent and seriousness of environmental problems.

A project for the supply of co-ordinated information from the border regions has been launched to improve access to information.

One institute from each region is chosen by Finnish, Russian and Estonian environmental authorities to be developed as a regional environmental centre. These information centres act as co-operation partners for the Finnish authorities, and they also provide their own authorities and institutions with information on the environmental situation in the respective regions.

This system is now under implementation and there are co-operation agreements with the Academy of Sciences in the Kola Peninsular, with the Institute of the Industrial Ecological Problems of the North in Apatity, and with the Estonian Nature Management Scientific Infocentre in Tallinn in Estonia. It is planned to sign a similar agreement with Karelia in 1993 and with St Petersburg in 1994.

According to the co-operation agreements, local authorities in border regions are obliged to exchange mutually-agreed information about the environmental situation. In addition, regional reports are to be made in co-operation between Finnish, Russian and Estonian local authorities.

Finnish authorities supply computer equipment and software to regional environmental information centres to help build up the monitoring system. They also train the recipients in the use of the machinery and programmes delivered. The software includes registers for water quality, soil chemistry, hydrological data and registers for data on the air and water pollution load.

The network should be ready in 1995 and data connections between regional environmental centres should be in operation by the end of the century.

Successes and failures

The consciously-maintained low profile and the careful work during the initial phase, as well as the long traditions of scientific co-operation between Finland and the former Soviet Union are the reasons why no particular failures have been recorded so far. Delays in all areas and the extremely difficult economic situation have to be taken into account at every step. Frequent organisational changes and changes of personnel in the environmental sector tend to make progress slower than expected.

The problems are acknowledged and frequently discussed and solutions to most of them have been jointly found, although separately in nearly every case.

A good basis for proceeding has been built up through good access to information which was previously restricted or difficult to obtain for practical reasons.

In spite of scarce financial resources, the considerable financial allocations to environmental projects, especially in Estonia and Karelia, indicates the high priority given to environmental issues and particularly to our environmental co-operation.

The implementation of projects under difficult conditions also increases the motivation of those involved in various stages of project preparation and training on both sides.

Future development of co-operation

If no unfavourable changes occur in the situation in Russia, Estonia or Finland, the guidelines drawn up

from the work of the past three years will continue to be followed in the near future.

There are joint decisions on studies in environmental problem areas, and the implementation of environmental investment programmes will engage resources on both sides of the border and keep those involved in an innovative mood for at least the following ten years.

Bilateral co-operation will also play an important role in the coming years, when the concerted efforts of all those involved in environmental co-operation in Central and Eastern Europe through programmes like the Baltic Sea Environment Action Programme and the Pan-European Environmental Action Programme will help to achieve the best possible results.

CONCLUSIONS

by Prof. Dr László LACKÓ
General Rapporteur

and

Mr Egon MATZNER
Austrian Academy of Sciences

CONCLUSIONS

by Prof. Dr László LACKÓ

General Rapporteur

The presentations and other contributions proved the timeliness of the colloquy's subject and shed light on several problems, influencing factors of transborder co-operation in central Europe.

Several topics were deeply analysed, while others got less attention. The title of the colloquy focused on transborder co-operation in Central Europe under the constraints of sustainable development and taking planning as an instrument. Most of the presentations dealt mainly with general paths, factors and experiences of regional development in the more developed parts of Europe. It seemed rather problematic to find out the specific requirements of sustainable development for border regions.

The experiences of the Council of Europe, as well as the European Community, are proof that transborder co-operation contains many issues of a very different character and it has also become clear that "therapies" must be well adjusted to the given conditions. The importance of the diversity of borders, both from the point of view of their nature and the accompanying conditions, was widely emphasised.

The participants in the colloquy agreed that some general factors play a crucial role in the possibilities, intensity and forms of transborder co-operation:

- first, the level of development and basic factors of spatial structure should be mentioned; it is well-known how big the spatial differences are and how strongly they influence transborder co-operation throughout Europe.

- a declining "slope" from West to East clearly appears in Europe, which can be expressed in GDP *per capita*, level of infrastructure and services. It is intersected by a North-South "trench", mainly along the borders between the former socialist and the western countries; beyond the "trench" there are steps down and the "slope" continues at a lower level.

- more attention must be paid to the "slope" and the "trench".

Stress should be laid on the peculiarities of Central and, moreover, on East-Central Europe. The countries of this region inevitably belong to Europe, however their traditions, aspirations, way of thinking, motivations and institutional frameworks are different. Because of this and past and present experiences, any kind of duplication or repitition of West European schemes and solutions could cause losses, and should therefore be avoided.

Many indications were given of the influences of the development level on both sides of the border on the co-operation itself. Inevitably, it was shown that the closer the development levels, the better the chances for an intensive co-operation.

The overall importance of political atmosphere on transborder co-operation was strongly emphasised in addition to a modest counteraction possibility of transborder co-operation on the improvement of political relations. This has a special significance in East-Central Europe at present.

During the colloquy, several aspects of transborder co-operation were discussed and presented. However, it was clearly felt that a large amount of knowledge and scientific background was missing. For example:

- further works should be devoted to the clarification of promoting and hindering factors of transborder co-operation. Some of them were found: promoting

- small-scale co-operation in tourism, cultural co-operation, exchange of goods, similarities in ethnographic or natural conditions; hindering - political tensions, environmental pollution etc.

- in the countries of East-Central Europe, many research activities dealt with border regions, and many data were collected and analysed, in accordance with the requirements and possibilities of that time. The present and future needs are different, and a multitude of questions has appeared:

  - the share of transborder regions within the country
  - socio-economic importance of the border regions of the country
  - development level of border regions in comparison with other parts of the country
  - motivating forces of transborder co-operation
  - possible impact of development of transborder co-operation on the other parts of the country
  - the connection between national/regional development and transborder co-operation

When discussing the future steps to be taken, some circumstances should be taken into account, one of which is that the border regions between the former socialist and the Western countries form a special case and the co-operation within East-Central European countries forms another category. From the point of view of content, if we are talking about the development of transborder co-operation we must not restrict ourselves to planning or planning-related factors but we have to deal with institutional, administrative issues, demographic, social, economic conditions, prospects, and, evidently, with the clarification factors and requirements of sustainable development.

Looking more closely at future activities of the Council of Europe in helping transborder co-operation in Central and Eastern Europe, the following activities were outlined by the colloquy:

- a broad outline/framework of the aims, instruments and forms of transborder co-operation should be elaborated and issued by the Council of Europe;

- on the basis of this framework, as well as earlier experiences and their results, each border section should be carefully investigated and evaluated as to their natural, demographic, economic, social conditions, with special emphasis on environmental quality. Obviously, this work has to be accomplished on both sides of the border. Proper financial support should be offered (by the Council of Europe or any other international organisation) for the countries concerned;

- the analyses made by the specialists of the given countries should be edited into one volume, and then evaluated by experts coming from other countries;

- to achieve real and continuous results in transborder co-operation apart from international and national efforts, a bottom-up approach is also necessary. Namely, organisations involving the population of each given border area must be established and helped. They can promote the formation of co-operation tasks, evaluation of "official" proposals, projects etc;

- in the development of transborder co-operation, all the above-mentioned activities and - above all - real results, can only be implemented/achieved if the Council of Europe creates - as soon as possible - a "Fund for promoting transborder co-operation in Central Europe".

CONCLUSIONS

by Mr Egon MATZNER
Austrian Academy of Sciences
Research Unit for Socio-Economics
Vienna

Diversity and heterogeneity are both characteristics of Europe; they are a potential source of wealth - or of destruction. They can be the source of conflict - or of co-operation.

Diversity and heterogeneity offer opportunities for division of labour, for competition and/or co-operation.

They are, therefore, to be preferred to uniformity and homogeneity on the basis of three commonly-shared values of universal validity:

1. Universal human rights ought to prevail

2. Decent and sustainable living conditions of acceptable value ought to be approximated everywhere

3. Diversity and heterogeneity ought to be attainable for the rest.

Diversity and heterogeneity can be ranged by the typology of transborder co-operation suggested in my introductory statement.

Typologies are only useful when they improve our understanding of the problem in question. This is the case when the types found differ in respect to the way the problem can be solved. The specific and supplementary reports, as well as the contributions to the discussion, showed that this is the case.

The four types represent four different socio-economic contexts. A socio-economic context is constituted by four elements:

1. the prevalent world view

2. its institution, conventions and technologies, as well as the interests and social practices expressing them

3. the relative resource endowment (capital), as well as the relative costs, incomes and prices

4. the emanating and formative policies which influence 1 to 3.

These four elements define a socio-economic context in which the actors, individual as well as collective, have to decide and to act according to their interests and the logics of the given/expected situation.

It was, rightly, pointed out that types 1 and 2 do not deal directly with the topic of the colloquy ("Transborder co-operation in central Europe"). At the same time, it is true that transborder co-operation of types 1 and 2 has a bearing on types 3 and 4. Awareness, a constituent of the "world view" (element 1 of a socio-economic context), needs to be changed. High-speed transport systems are not of top priority for the countries aiming at transforming their economic systems into market-based economies. Top priority should be reserved for improving the overall systems by modernising and economising the existing systems. High-speed systems are a dream which distracts from what is to be done in the short and medium term.

Type 2 - transborder co-operation: rich-rich, is on the increase throughout western Europe, but not in the poor countries in central and eastern Europe. There are important reasons for this difference. One was convincingly demonstrated in the framework of the Upper Rhine region. Even in one of the richest regions in Europe, transborder co-operation does not emerge spontaneously. On the contrary, the socio-economic context which induces co-operation by its situational logic has to be created by conscious action. In the case of the Upper Rhine co-operation, all four basic elements of the socio-economic context have been changed:

1. an information campaign successfully extended the mental map ("awareness", "world view") of the citizens as well as of public actors;

2. new institutions were created;

3. financing schemes (EC support) improved the monetary incentive to co-operate;

4. a convention of the Heads of State of the countries concerned confirmed high-level support to this project of transborder co-operation.

Type 3 - Transborder co-operation: poor-poor, is probably the most needed and yet it is not taking place. This is certainly, to an important extent, due to the legacy of the imploded regime. If the gains of co-operation, so utterly needed, are to be harvested, a socio-economic context would have to be designed and staged (*mis-en-scène*) which remunerates co-operative behaviour. The Upper Rhine example shows that this is even necessary in rich-rich co-operation. The European and national authorities in Europe are to be urged to provide the incentive schemes needed.

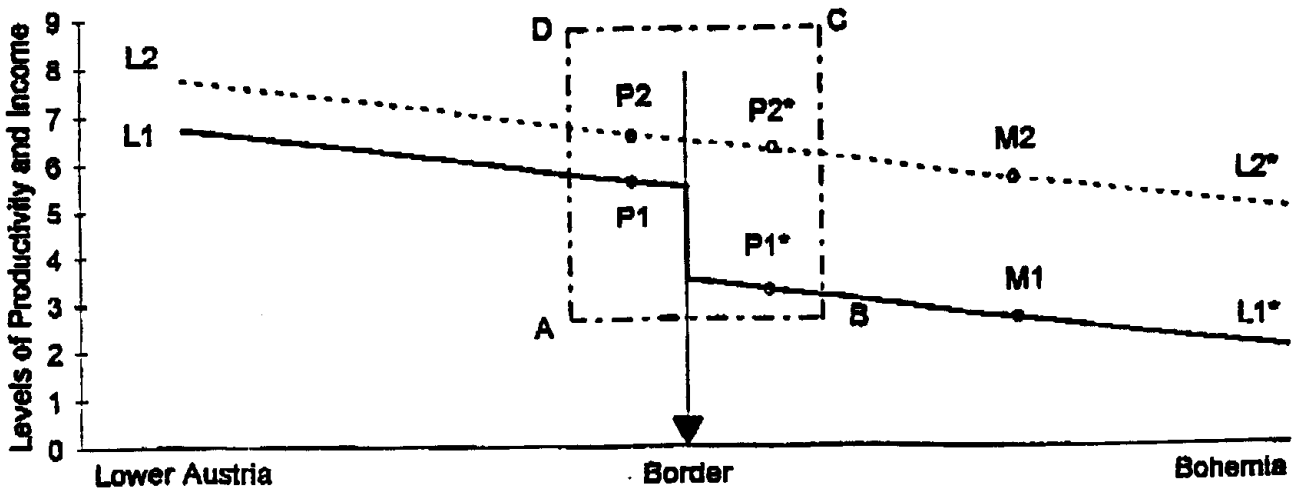
Type 4 - Transborder co-operation: poor-rich, rich-poor. This type of co-operation is the topical theme of the colloquy. It is therefore necessary to dwell upon this issue at greater length. To this purpose an extended version is offered:

Transborder co-operation between poor and rich countries: The case of Lower Austria and Bohemia

In the following diagram, the line L1L1* describes the decline of productivity/income from "West to East", or from market-based to former centrally-planned economies. Area ABCD is the region which is delineated for transborder co-operation. P1 is the "rich" and P1* the poor town. The slightly declining line L2L2* is the target of activities: a great increase in the level of productivity/income in the "Eastern" region, a modest increase in the "Western" one. The aim is to convert the towns P1 and P1*, separated by a border and an "income-fall" into P2 and P2* with a similar level of productivity and income. The intention not to transfer the "income-fall" eastward is equally important, i.e. to assure that town M1, located outside the transborder region ABCD, should increase its level of productivity/income in parallel, from L1L1* to L2L2*.

The opinions expressed at the colloquy clearly showed that the dynamics emanating from this socio-economic context do not result in an upward move of the slope described by Mr. Lackó, General Rapporteur ("Lackó slope"). Some rapporteurs explicitly showed that unless a counteraction is launched, the gap in income levels will tend to increase. This is completely in accordance with well-established theoretical results.

Transborder co-operation between poor and rich countries: The case of Lower Austria and Bohemia



What would happen if the focus of policy is given to transborder co-operation, i.e. in terms of awareness, funds, policy etc? It was argued that this would increase the already existing international regional imbalances in the "East". In the logic of the diagram, the "Lackó slope" would be transferred further to the "East"; M would remain closer to the L1L1* that the L2L2* line.

Let us now turn to our conclusions of the colloquy. They are fourfold:

First: Transborder co-operation, on its own, cannot be the solution to the problem in question. It would only move the problem "eastwards". Any sustainable solution would have to be of national reach. It would also have to reduce the "slope" between the Western and Eastern regions, lest the old situation be reproduced. This requires the building of a new socio-economic context. Such a context consists of a stabilisation programme fostering (1) sufficient effective demand; (2) reorganisation and modernisation of production; (3) "market making" which consciously replaces central planning; (4) deregulation and privatisation in line with the reduction of imbalances, in particular in relations with highly-developed industrial countries, as well as (5) a policy of capital exports from the rich to the former centrally-planned economies - the "market", left to itself, is not able to reduce the income gap.

Second: Such a socio-economic context is needed for a promotion of net investment in infrastructure, human capital and modernisation of existing and the creation of new internationally-competitive production capacity. This is, rightly understood, a mutual concern for the poor as well as the rich countries in Europe.

Third: Any programme of investment promotion which does not fully rely on the spontaneity of market forces, is - as long as too strong a gap in productivity/income between the crossborder regions exists - bound to take recourse to flood gates. These are necessary for channelling the flow of goods from the rich to the poor countries as well as a reverse flow of people and capital, as was already experienced in the relations between Third World countries and, for example, the USA.

Fourth: From history we can learn that co-operation sometimes emerges spontaneously and that, sometimes, it has to be "staged". In the case of transborder co-operation, it is obvious that it has to be created. Creating a socio-economic context which enhances co-operation requires, as was stressed, changes in (1) the "world view" (i.e. also by monitoring); (2) institutions (i.e. founding for example observatories; (3) relative prices, incomes etc (i.e. money which remunerates co-operation), and *ceterum censeo*, (4) policies to bring about (1) to (3).

SUMMARY

Co-operation across borders was generally regarded as positive: it produces gain in welfare on the European level as well as between rich and between poor regions. The successful cases show that even in rich regions co-operation has to be created by conscious civil or public action. We have to work for it, in particular in the case of transborder co-operation among the poor and between the rich and poor regions. At all levels, particularly at the level of the European Community, top priority ought to be given to the promotion of co-operation. It is particularly important to give the "right signals" (which change the awareness of problems) and support them by remunerative incentives for co-operative action.

European integration has, until now, centred around promoting competition. This achievement henceforth ought to be balanced by the promotion of co-operation at all levels. This is a lesson that, in general terms, has been taught to us by the classical political economists, above all by Adam Smith. European integration is about competition and co-operation. Its success or failure will prove it.

Sales agents for publications of the Council of Europe
Agents de vente des publications du Conseil de l'Europe

AUSTRALIA/AUSTRALIE
Hunter Publications, 58A, Gipps Street
AUS-3066 COLLINGWOOD, Victoria

AUSTRIA/AUTRICHE
Gerold und Co., Graben 31
A-1011 VIENNA 1

BELGIUM/BELGIQUE
La Librairie européenne SA
244, rue de la Loi, B-1040 BRUXELLES

CANADA
Renouf Publishing Company Limited
1294 Algoma Road
CDN-OTTAWA ONT K1B 3W8

CYPRUS/CHYPRE
MAM
The House of the Cyprus Book
PO Box 1722, CY-NICOSIA

DENMARK/DANEMARK
Munksgaard
Book and Subscription Service
PO Box 2148
DK-1016 COPENHAGEN K

FINLAND/FINLANDE
Akateeminen Kirjakauppa
Keskuskatu 1, PO Box 218
SF-00381 HELSINKI

GERMANY/ALLEMAGNE
Verlag Dr. Hans Heger
Herderstraße 56
Postfach 20 13 63, D-5300 BONN

GREECE/GRÈCE
Librairie Kauffmann
Mavrokordatou 9, GR-ATHINAI 106 78

IRELAND/IRLANDE
Government Stationery Office
Publications Section
Bishop Street, IRL-DUBLIN 8

ITALY/ITALIE
Libreria Commissionaria Sansoni
Via Duca di Calabria, 1/1
Casella Postale 552, I-50125 FLORENCE

LUXEMBOURG
Librairie Bourbon
(Imprimerie Saint-Paul)
11, rue Bourbon
L-1249 LUXEMBOURG

NETHERLANDS/PAYS-BAS
InOr-publikaties, PO Box 202
NL-7480 AE HAAKSBERGEN

SDU Staatsdrukkerij/Uitgeverij
Christoffel Plantijnstraat 2
Postbus 20014
NL-2500 EA DEN HAAG

NORWAY/NORVÈGE
Akademika, A/S Universitetsbokhandel
PO Box 84, Blindern
N-0314 OSLO

PORTUGAL
Livraria Portugal, Rua do Carmo, 70
P-1200 LISBON

SPAIN/ ESPAGNE
Mundi-Prensa Libros SA
Castelló 37, E-28001 MADRID

Librería Internacional Aedos
Consejo de Ciento, 391
E-08009 BARCELONA

Llibreria de la Generalitat
Rambla dels Estudis, 118
E-08002 BARCELONA

Llibreria de la Generalitat de Catalunya
Gran Via Jaume I, 38, E-17001 GIRONA

SWEDEN/SUÈDE
Aktiebolaget CE Fritzes
Regeringsgatan 12, Box 163 56
S-10327 STOCKHOLM

SWITZERLAND/SUISSE
Buchhandlung Heinimann & Co.
Kirchgasse 17, CH-8001 ZURICH

UNITED KINGDOM/ROYAUME-UNI
HMSO, Agency Section
51 Nine Elms Lane
GB-LONDON SW8 5DR

UNITED STATES and CANADA/
ÉTATS-UNIS et CANADA
Manhattan Publishing Company
1 Croton Point Avenue, PO Box 650
CROTON, NY 10520

STRASBOURG
Librairie internationale Kléber
1, rue des Francs-Bourgeois
F-67000 STRASBOURG

Librairie des Facultés
2-12, rue de Rome
F-67000 STRASBOURG