

THE SITUATION IN ITALY

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Abstract

The following report tries to point out some solutions to the co-ordination between transport and land use policies as they have come out in the Italian urban planning practice. Since it does not exist a tradition of studies on the theme the solutions are strictly linked to the historical circumstances and projects they were thought for.

In order to help the reading of the experiences the report is written following a chronological order (from the experiences of the Fifties to the experiences of the Nineties) and distinguishing between different methodological attitudes (inductive or deductive) and points of observation (turned to the inside or to the outside of the political and administrative system).

Also in Italy the orientation that faces the relation between transport and land use policies as a problematic relation that requires mechanisms and arrangements for co-ordination, represents an original orientation, maybe even more conscious than before of the importance of an integrated approach.

We don't have a synthesis of the solutions worked out in Italy to solve the problem of the relation between transport and land use policies; what we attempt with this report is to select some significant experiences and to analyse them by new, helped with a scheme that distinguishes different approaches to that relation.

As we have explained in the previous reports on the bibliography, in this scheme each approach comes out from a different combination of methodological attitudes (inductive or deductive) and points of observation (turned to the inside or to the outside of the political and administrative system).

While for the bibliography it has been easy to bring each scientific contribution back to its main approach, for the planning experiences the same work has needed a deeper analysis: some experiences already represent orientations with solutions to the transport-land use problem according to a certain approach; some others do not give conscious solutions to the problem but represent clear premises to one-way approaches and solutions.

In the Fifties the highway policy reveals a deductive or merely simplistic approach to the relation transport-land uses: in order to "serve" the developed areas and to ensure economic growth private and national transportation are preferred to public and regional.

The planning experiences of the Sixties still underestimate the importance of transports in planning strategies: the goal of territorial equilibrium is pursued with changes in the urban layouts according to the theory of the “poles of development” and transports represent only a sector of investment more similar to common urban public services.

In the Seventies the need for regional planning becomes a real problem: Regions are pointed out as new institutional subjects and their planning activity gains in effectiveness thanks to the Territorial Plans of Co-ordination and to the Sectorial Plans.

From this moment on a very solid planning system takes place in Italy: mostly articulated into sectors, but institutionally not thought to point out the importance of the relation between transport and land use policies. Regional Plans fit a scheme that is not able to turn into policies the extensive analytic material available at the same scale and even does not give proper arrangement to the material that catches, with a deductive approach and with the help of models, the most significant relations between transports and land uses in the territory: long-time effects, structuring of polarised, widespread or wrapped up layouts, urban spread, land waste.

The supposed mechanistic functioning of an administrative system made of levels and sectors working perfectly does not help the authors of these plans to dedicate any particular attention to the implementation of policies. The failures in implementation produce only barren exhortations to a stronger co-ordination between sectors. In the optic of these years, the solution to the co-ordination between transports and land uses can be found inside the political system relying on a hierarchical structure in which implementation occurs at the bottom, according to a manifest deductive approach.

For a long-time the only operative instruments in Italy are the Local Plans and the Sectorial Plans that share the duties of the land use planning and of the transport planning, and seldom succeed in making reciprocally coherent choices. The continuous turning to Variants in Local Plans to carry out Sectorial Projects is significant by the way.

The only adjustment in the rigid scheme of the Regional Plans occurs in the Eighties when criticism to the ineffectiveness of policies grows up. The Plans of Area and the Operative Projects are new instruments worked out to specify regional plans in particular contexts and to verify coherence of choices between sectorial plans referred to the same area.

In the same years criticism to the little attention paid to the real urban effects of infrastructures starts up the experiences connected to the Environmental Impact Assessment. These experiences still reveal a deductive approach to the relations between transports and land uses that are outside the political system: effects are considered as negative impacts that have to be foreseen before projecting the infrastructure.

Some changes of the Eighties, like the new interest in urban problems or the dissatisfaction for mechanisms of prevision and for global and systemic plans, anticipate experiences that reveal new orientations in the looking for solutions to our problem. These experiences stand out for taking place at the urban and metropolitan scale and for forcing into smaller contexts the ambition to control the relations between transports and land uses. We can mention the experience of the Director Documents for the Urban Railway that concern the towns of Milan, Turin and Florence, and the experience of the Integrated Projects of the Transport General Plan that concern 13 Italian metropolitan areas. Inductive and deductive approaches to the relations between transports and land uses that are outside the political system are both present in these experiences. The first are connected to the sensitiveness shown for most urgent problems in town such as traffic, environmental pollution, neglected areas, need for office areas; the second are connected with those solutions that entrust transportation with the revival of urban areas. As a consequence of the impulse to put projects into effect, these experiences distinguish also for a new attention paid to the functioning of the political system. Thanks to some inductive approaches to this system multiactoriality is acknowledged as a basic characteristic of it; while, through a deductive effort, solutions are given for a renewal of the planning instrumentation. For example the Director Document for the Urban Railway of Milan, that is widely influenced by the American experience in strategic planning and polemises with the current local planning system, suggest a planning set up in which the Document itself is charged with the specifying of the strategic goals, while the implementation of the projects is left to some so-called Projects of Area and supervised by semi-public Agencies interested in partnerships between public and private actors. Without requiring changes in the institutional set up, the Integrated Projects propose Protocols of Agreement and Conventions in order to help the subjects of planning to come to an agreement both on planning goals and specific projects.

The experiences of these early Nineties spring from a rich variety of spurs: some of them press for thinking by new the past orientations; some others suggest to try new solutions. As regards the problem of co-ordination between transports and land uses, the solutions coming from these orientations are as various as vague.

First of all a new interest for the large scale is standed out with some important consequences for our theme of research.

The studies on the structuring role of transports in urban layouts receive new attention: they reveal a deductive approach to the relation that are outside the political system rectified by inductive intentions as they look for correspondences between ideal urban layouts that lie upon transports and "emerging urban settings".

The main experience that points out the changing of scale and that shows traces of the above-mentioned studies is the Regional Railway Service. This project carries up to the large scale the project of the Urban Railway of Milan and aims to create an "integrated and connected railway" that takes central functions to the junctions: the result is the possibility of free and indifferent urban choices inside the regional area.

Secondly a process of renewal of the institutional set up is started and brought to conclusion thanks to the law 142/90: the Province, as a body of middle level, is charged with both urban and transport planning. The initiative, characterised by a deductive approach turned inside the political system, has not seemed since the beginning very useful to solve the problem of the integration between transport and land-use policies: transport planning cannot be embraced by only one level since transports “cross” transversally the whole administrative system.

Thirdly, to face the problem of the wide-spread effects of large scale projects on the fragmented political system, some new procedures of implementation have been tried, like the Programmes of Agreement, the Protocols of Agreement, the Conferences of Services.

In these experiences the attention is turned inside the political system: co-ordination between transport and land use policies can be resolved with the co-ordination of the two respective policy communities. The approach is only partially deductive since even the promoters of these procedures know that “cooperative procedures” do never completely inform actions with real cooperative intentions and most of times actors make choices freely. It is not clear yet if the experimentation of these procedures can be considered as the normative outcome of the inductive and descriptive approaches typical of the first italian “case-study” literature, or if this literature, that has in the political system its object of analysis, will work out totally different solutions to the problem.

A last group of spurs to the experiences of the nineties consists in some studies inspired by inductive approaches to the interdependencies between transports and land uses that are outside the political system. A significant set of studies characterised by a morphological analysis of the relations between physical set up and transport or land uses, is to be added to the studies that more typically belong to the approach and that concern with the analysis of the effects of transports on land uses.

All these spurs seem to recur in the latest provincial planning experience. The scheme of the Territorial Provincial Plans is corrected in accord to the new orientations: analysis pay more attention to the morphological studies; strategic goals emphasise the importance of transports in urban layouts; procedures of implementation entrust the Plans of Area with the co-ordination between sectors and the Procedures of Co-operation with the co-ordination between actors.

THE SITUATION IN SPAIN

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At the present time in Spain there is no countrywide plan for territorial organisation, although there are locally organised plans by certain Autonomous Communities. In spite of the absence of a state plan, in 1994 after a long period of gestation, the government came up with the Infrastructures Guidance Plan (Plan Director de Infraestructuras) with a horizon for the year 2007. The Plan considers in a global and integrated way, infrastructure planning for the whole of Spain, including urban transport, large cities, hydraulic infrastructures, as well as the environment and natural, protected spaces. This, then, is the first attempt at planning the whole set of basic infrastructures together developed in Spain.

The Plan is presented as an effort that integrates and vertebrates the territory. The document is conceived as a dynamic planning element within a coherent, strategic framework. At the same time it seeks to contribute to and facilitate the debate about its implantation in the territories it affects. The Plan also constitutes the expression of a certain political option. On applying it progressively it is meant to maintain the rhythm of investment in infrastructures without the capacity of public investment being affected by the ups and downs of Spanish economy. It is therefore believed that a sustained rhythm in investment will have a favourable effect on production stability and employment. At the same time, the Plan is articulated in a wider context than that strictly limited by Spanish territorial frontiers, since it is intended to integrate it into European infrastructure plans and in this way face territorial concurrence parallel to European convergence.

Therefore, and in spite of having been approved at a time of economic recession, the Plan is an ambitious one, the main problem lying on its implantation. The need to reduce public deficit, the economic effort of coming into line with the Maastrich objectives implied for the Public Funds, form a series of difficulties that if they are to be overcome will require that the aims of the Plan be adopted by the whole of society.

1. The Plan presents a territorial strategy and marks the following lines of action:

Within the transport infrastructure system, from operational plans for satisfying in a balanced way the demand for mobility in large cities. It presents a balance between society and territory, suggesting at the same time, the need to approach the problem with co-operation among several Ministries.

The effort is concentrated in road infrastructure as becomes the universal model within the transport system. Road percentage for passenger transport is over 90% in Spain, whereas for goods it is 70%.

For the large cities intermodal transport plans are proposed that, on the one hand promotes public transport, and on the other incorporates environmental aspects.

The road network programme represents 30% of the total infrastructure investment. So there are 5,300 km. of new motorways planned for construction and 1,400 km. of connecting roads. Therefore, the improvement in accessibility for the territories that are worse off, the netting of the network and the development of international connections constitute the basic strategy of the Plan.

As refers to the railway environment, the AVE (high speed train) Madrid-Barcelona-Perpignan, the Y of the Basque region and the Navarre corridor, concentrate the major part of investments. In the ports and airports programmes it is necessary to optimise system functions, integrating them with the land network, as for example in the Delta Plan. Intermodality is also proposed for the 18 metropolitan areas as well as access and ring roads.

This ambitious programme, however, must be carried out by the new government should it be approved. At the moment, seemingly in the short term, policy referring to territorial organisation, infrastructures and transport will be affected by the intervention of private enterprise. On the other hand, Spain must adapt its infrastructures to European space as designed by the Community, even though, at the present time, the possibility of establishing criteria for territorial organisation dependent on regional possibilities, is still to be checked out, especially in the less developed regions, and on regional planning that are still not matured mostly because they have no budget for that purpose.

2. The role of the autonomous regions

The Constitution of 1978, admits of the existence inside Spanish borders of a series of national and regional realities. The Spanish Magna Carta pretended in this way to reconcile such diversity by means of a territorial redistribution of political power. The political configuration of the new State was therefore presented as the sum of central government plus autonomic and local authorities.

The new political panorama, therefore, allowed for a certain degree of self government on the part of the different autonomous communities which meant a certain level of competence, that as refers to transport is articulated under the followings points: territorial organisation, town planning and housing, civil engineering of interest to the autonomous community within its own territory, the rail and road networks whose itineraries begin and end wholly within their territory, and lastly the yacht club harbours and ports and flying club airports, and in general all those that do no commercial business.

Under the Constitution and the different Autonomic Statutes drawn up by the autonomic parliaments, a considerable legislative effort was begun with the aim to give entity to those areas of responsibility to be taken on by the regional governments. With the transfer of responsibility in the matter of road transport, the autonomous communities not only took on the management of part of the national network, but also the capacity to plan motorways without having to answer to central government.

From 1982 and 1990, the majority of autonomous governments made up their respective road plans. For the first time in Spain thought was directed towards the roads and territorial planning from a perspective other than State Regional road plans were therefore converted into an instrument for planning where the road policy of each autonomy was inscribed. The objectives behind their specification are, on the one hand, to try to palliate deficiencies in the transport infrastructures, that constitutes a handicap for economic development, and on the other hand, to contribute to a reduction in territorial imbalance, through new territorial articulation. It is therefore intended to look after the objectives of territorial equality through improving accessibility in the less favoured areas.

As refers specifically to the Catalan territory and under Law of 21st November 1983, the “Generalitat” created the figure of the General Territorial Plan to which two main functions are attributed. In the first place to define territorial balance objectives and in the second place to serve as a guideline framework for actions that affect the territory. The final aim of the Plan is to define the territorial reference model for the whole of the Catalan territory.

In the field of transport infrastructure, the Plan considers as basic parts for compliance with its mains improvement of global accessibility in the territory. For this reason it considers the need to draw up an Intermodal Transport Plan that includes all modes of transport.

We can therefore conclude that the different regional road plans, as well as the general territorial planning, are conceived as key instruments for territorial organisations, economy promotion and regional balancing. The general plans drawn up by the autonomous communities, whether for roads or those that have wider implications, constitute a good example of institutional co-ordination mechanisms between transport and territorial organisation on a regional scale.

3. Local and Metropolitan networks

Up to now we have briefly described the Infrastructures Guidance Plan (Plan Director de Infraestructuras), and the General Roadway Plans, as well as the example of the Catalanian General Territorial Plan. The first covers in an integrated and global way the planning of infrastructures on a national level, the second are framed inside a regional scale. Therefore, we are left with the local level. Because of its significance, the “Plan Territorial Metropolità de Barcelona” (Barcelona Urban Territorial Planning) is to be noted, and it constitutes a significant document on

urban town planning for Barcelona. This plan is conceived as a partial plan within the General Catalanian Territorial Planning and must therefore be in line with the general objectives established in this last. Along these line, it defines with respect to the transport infrastructure the following “instrumental” objectives. In the first place, to design in a innovative way, infra-structural networks with a systematic vision to facilitate synergy among them, to structure the territory and contribute to a qualitative homogenisation. In the second place, to propose the general outline of public transport in co-operation with the Inter-modal Transport Plan. Lastly, to promote the different systems and guarantee multi-modality.

The evolution of territorial planning tends to be cyclical which is linked to a large extend to the economics circumstances, and in the specific case in Spain, also to the political situation. Therefore, from 1986 onwards, with the onset of improvement in the economic crisis, and the new European dimension initiated, the stage was favourably set for territorial organisation and its link with transport. The Roadway and Territory Planning are the product of this expansive economic situation, as well as the progressive consolidation of the Autonomous Communities. From 1992 onwards, another economic recession was entered provoking budgetary difficulties that contributed decisively in a slowing down process of planning that has been limited to polishing off the plans that had already been initiated.

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THE SITUATION IN SWITZERLAND

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1. Spatial transformations

We are currently observing the emergence of new urban forms, as the outcome of a double process: perurbanization and the establishment of networks between centre-cities, similar to the “hubs and spokes” model. As a result of this phenomenon – that some authors call metropolization¹⁵ – the space that is daily used by the inhabitants has expanded considerably. For many users daily mobility has spread out to include the total agglomeration zone or urban region, whereas it used to be confined to the neighbourhood or to the commune.¹⁶ This means that the importance of geographical proximity with regard to social integration tends to change.

The establishment of networks between urban agglomerations is characteristic of the current development in many European cities. It represents a new step in the concentration of decisional power in the large centres. Transport infrastructures play a decisive role in this process, for two reasons:

- the large infrastructures such as highways, by-passes, and other fast train systems (RER), make it possible to reach more destinations within a unit of time (duration). In other words, thanks to them one can, for instance, live more than 50 kilometres from one's place of work without investing too much time in travel. Therefore, these infrastructures bring changes in the strategies applied in selecting dwellings and make it possible for people to get a job within a much larger area.
- the centrality of the great urban regions is largely connected to the quality of the network linking them to the other central regions of Europe or of the world.

More explicitly, these infrastructures induce new traffics, which is largely explained by the constancy of the time-budgets devoted to daily mobility. This aspect is all the more interesting that these infrastructures were not planned and implemented with a view to developing the flows of people and goods between cities, but to reduce travel duration (Bassand et al. 1986). We thus see the users re-appropriating the

¹⁵ Note that metropolization mechanisms also influence the definition of the centrality of urban spaces and of their relationships to the other regions. This is not without effect on land-use planning, and on infrastructures of transportation.

¹⁶ Here, the question of the definition of agglomerations or urban zones is crucial. The definition used in Switzerland is largely grounded on the links created by commuting. This kind of definition thus stresses functional relationships rather than morphological characteristics (Schuler, 1995).

infrastructures, diverting them from their initial function. People do not invest less time in travelling, but they use the time gained to expand the range of their mobility. In this sense, the infrastructures mentioned structure urban development.

2. The rules of the institutional game in Switzerland

The form taken by this process will of course depend on the land-use planning and transportation policies applied in the country: in fact, the first type of policy will define the frame in which the second will be expressed. Yet these policies cannot be understood without reference to the context and to the political tradition that are specific to each country or to each locality; in short, to what Kriesi et al. (1995) call the structures of political opportunities.

2.1. Decentralisation and direct democracy

Switzerland has a very decentralised structure, which allows the emergence of specific local conditions. Indeed, in this country institutions are built on the subsidiarity principle. According to this principle – and with the exception of cases where it is difficult to apply –, the most decentralised level has to be granted decisional competence. And, even in areas where the Confederation has eventually been given formal competencies, the executive form of federalism will be likely to leave a great margin of liberty to the cantons and communes.¹⁷ Due to this disparity, there has been an early tendency to elaborate partnership agreements between institutional levels, but also between authorities and private instances. This is also a way of trying to reintroduce homogeneity in the application of public policies, together with efficiency - in whichever sense the experts may define it. In this sense, the Swiss model corresponds pretty well to what has been described under the term of governance.¹⁸

The concrete application of direct democracy is more or less developed in different regions of the country,¹⁹ but its principle is always present at the three institutional levels.²⁰ It is another political constant. In a similar way, the possibilities of recourse and participation concerning town planning and building policies are important. They are sometimes also found at the level of land-use planning.

¹⁷ Competences and the organization of communes are defined by each canton. In other words, some cantons will delegate many tasks to the communes while others, and in particular cantons-cities such as Geneva or Basel have structures where communes play a much less important role.

¹⁸ Cf. among others Gaudin (1995), Galès (1995) or Stoker (1995).

¹⁹ As an example, in 10 years the number of local referendum varied from less than 10 in Lausanne or Neuchâtel as opposed to over 100 in Berne or Zurich (Huissoud and Joye, 1992).

²⁰ Please note that in Switzerland too, the debate on agglomeration structures is progressing; this would represent a fourth level. In Fribourg, the law explicitly anticipates the possibility of a semi-direct democracy at this level.

2.2 The law on land-use planning

The law on land-use planning (loi sur l'aménagement du territoire/LAT) contains a list of recommendations that may be reinterpreted at the local level, i.e., by the communes and cantons that are availed of a considerable amount of power in this domain. The law thus acts as a weak legislative instrument; what is more, it was implemented rather late (Bridel, 1996). Yet, two of its characteristics are worth mentioning:

- It anticipates the promotion of means of transportation that are considered "ecological" (public transport, cycling and walking) along the smaller lines of access to the public transportation system supplying the whole of the country (Office des affaires communales et de l'organisation du territoire, 1994). More generally, land-use planning must explicitly co-ordinate the policies concerning the promotion of local development and those aimed at protecting the environment.
- This law also recommends that all actors concerned participate, i.e., owners, residents or businesses. This participation may be seen as a substitute for semi-direct democracy in an area where rights are defined by plans and not by norms in a strict sense (Flückiger, 1996). Even if its application is sometimes eluded, this prescription influences the decisions made at the level of land-use planning or, more generally, of those public policies that will have an impact on land use.

The connection between planning and transportation is explicitly mentioned in the LAT. The constraining character of this mention has been reinforced by the federal laws on the atmosphere and on noise (OPAIR and OPB, both containing relatively restrictive prescriptions). Their application has required the implementation of constraining measures concerning road traffic; they have thus had direct impacts on land-use planning policies, especially in urban contexts.

2.3. The big transport infrastructures

The Confederation is responsible for the large transport infrastructures. Eighty percent of the Swiss population live in the region situated between the Jura and the Alps, where all the big agglomerations are also found. This region – the Swiss Plateau – is serviced by a dense highway network whose construction is almost finished. It also has a network of Intercity trains circulating at cadenced frequencies (on the hour or on the half-hour) between the main centres of the country. These large infrastructures could almost be considered urban transport systems, based on both their intrinsic characteristics and on their use: they are frequently used for daily travel, e.g., for commuting. In fact, these infrastructures provide a very strong interconnection between the urban centres situated on the Swiss Plateau and tend to create a vast urban region.

This tendency can be seen in the evolution of urban agglomerations. According to the functional definition given by the Federal Office of Statistics (and based among others on flow data), the Swiss urban agglomerations have expanded considerably between 1970 and 1990 (Schuler 1995). Because of this trend, land-use planning

policies become relatively powerless: the population of the new periurban zones changes, becoming less sedentary and commuting more, without this necessarily involving changes in the built-environment.

3. Urban transports

It is the cantons and/or the communes that are responsible for road management in the agglomerations and for urban transport systems. Whereas road infrastructures are pretty much the same all over the country, parking policies vary considerably: they are generally strict in German Swiss cities, and more permissive in French Switzerland. On the whole, public transport networks are well connected to the national railroad system (CFF), allowing for direct access between rail and urban and suburban networks of public transportation. The 'continuity' of the supply services is increased by a system of season tickets (valid for a day, a month, or a year) and the publication of a timetable listing the connections for the whole country.

The numerous local reinterpretations of the law on land-use planning and urban transportation policies have introduced remarkable differences in the way the interface land use - transportation is managed. Generally speaking, in the large German Swiss agglomerations a priority is given to connecting the various public transportation networks; in French Swiss agglomerations, urban development is largely articulated along the great infrastructures of transportation (Pharaoah and Apele 1995; Kaufmann and Guidez 1996). On the other hand, it is interesting to note that a city such as Bern was developed along the railroad lines, while Lausanne expanded more alongside the highway network.

During the next years, the financial problems that both the cantons and the Confederation are facing are probably going to deeply influence the management of the transportation system. It is indeed anticipated that the costs of regional traffic will be re attributed to the cantons, while public transport in the agglomerations will be largely promoted. Considering urban development in Switzerland, it is in fact extremely likely that this type of distinction will be difficult to maintain, in any case in central zones. Consequently, the global offer of local transportation will decrease, making it all the more difficult to integrate transportation and land-use policies.

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**CO-ORDINATION BETWEEN TRANSPORT AND PLANNING :
A PANORAMIC SURVEY OF THE INSTITUTIONAL
ARRANGEMENTS AT WORK IN EUROPE**

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The importance of the interactions between spatial planning and management on the one hand, and the conception and operation of transport systems on the other, is well-known and accepted in both scientific and professional circles. The dangers of a strictly sectorial approach in transport and planning policies have been highlighted. But research into institutional management methods of these interactions are rare in Europe, and the need for knowledge consequently great.

The aim of the COST Action 332 “Transport and land-use policies - Innovations in institutional arrangements for co-ordination“ is to evaluate the effectiveness of institutional systems of co-ordination between transport and planning at work in the different European countries. The analysis, in context, of the way these co-ordination mechanisms have been implemented, naturally constitutes the raw material of this program. However, an indispensable pre-requisite for understanding the lessons to be learnt from each case and from a comparison between them, is knowledge (in a historical perspective) of the institutional, administrative and technical organisations of the various countries, inevitably different, within the framework of which these mechanisms have been produced, and are being carried out.

For this reason, the national delegations member of the COST Action 332 have drawn up an inventory relative to transport and planning policies, and to the institutional arrangements for co-ordinating decisions in these two sectors of public policy, which differ from country to country. In order to attempt a comparative analysis based on this work, it was suggested that they begin by summarising the attempts made, measures taken and success achieved (today or in the past) in co-ordinating transport and planning. It was then interesting to develop a summary of the debates on these questions currently in progress in the different countries, together with a presentation of the prevailing arguments, and similarly, a synthesis of the progress made and questions (in particular as they emerge from the national literature) on the subject of the interaction between policies or transport projects and regional planning in general. Files were then made up and the elements of synthesis presented here originate from their interpretation.

1. Transport/Planning co-ordination : national choices

1.1 Austria

Recognition of the interdependence between regional development and transport policies was, for a long time, followed by very little action, due, in particular, to the lack of an adequate "tool box" of ideas and practical measures. In January 1992, however, the General Concept of Transport in Austria was published, that is, one year after the publication of the Regional Policy Concept. Although these documents are simply catalogues of recommendations for the regional authorities, a master infrastructure plan, directly resulting from them, and which is more operational, has been planned for 1997.

Planning activities (urban areas, conservation of natural areas etc.) are usually the responsibility of the provinces (Bundesländer), except in certain cases where they may, for example, depend on the federal government (in sectors which are the direct responsibility of the ministries), etc. Generally speaking, all sectors which are not directly governed by federal law automatically come within the authority of the provinces, which goes some way towards explaining the recent shift in regional policies which from simple zoning acts are tending to become integrated development plans. Amongst the available channels for organising co-operation between regional authorities is the possibility of constituting advisory bodies of which the best example is the Austrian Congress on Regional Policy (OROK). A permanent authority for the confederation, the provinces, and the towns since its creation in 1971, it is responsible for the elaboration and monitoring of the Austrian Regional Policy Concept. It works with sub-groups of which one is devoted to transport and traffic matters.

With regard to transport, it must be remembered that trans-regional or strategic interest (road and rail) infrastructures are a matter for the federal authorities who also have legislative power in matters of transport (Ministry of Public Economy, Ministry of Sciences, Transport and Arts). The implementation of the Austrian infrastructure plan which is to serve as a framework for future projects has introduced an innovation : the inclusion, in all infrastructure proposals, of an analysis of its spatial impact.

To sum up, co-ordination of transport and regional development policies, which are decided at different levels of authority, is difficult : authorities such as OROK go some way towards facilitating this. Environmental and social problems, as well as European imperatives, make institutional and organisational change indispensable from now on. The conceptual and practical arsenal introduced at the beginning of the 1990s would seem to be a step in the right direction.

1.2 Denmark

With the exception of the capital and its region - whose administrative organisation has been in place for almost a century -, the present Danish system of government and planning was set up in 1970. It is based on a three-tier institutional hierarchy

(national, regional, and local) where decisions concerning land-use are largely decentralised, but where infrastructure planning is guided by central government. National sectorial plans are thus translated into local terms at the two "lower" levels, accompanied each time by plans of a more global nature to ensure that the allocation of space is coherent. In actual fact, the way in which the responsibility for these plans is shared between the competent authorities at each of the three territorial levels concerned (respectively the Ministry of the Environment, and the regional and local authorities) is clear only on paper.

In this country, two large-scale plans have attracted international attention. They concern the metropolitan area of Copenhagen and one was introduced before the launching in the 1960s of a planning policy in which zoning was privileged, and the other after this same policy had been placed on hold (respectively the 1949 "Fingerplan", and the construction of a fixed link between Denmark and Sweden with the explicit objective of regional integration).

A closer look at the case of Copenhagen :

- from the 1940s on, integrated planning through private initiatives whose basic principles were : concentration of employment, decentralisation of housing and the concentration of local services at network nodal points, and the conservation of peripheral open spaces;
- the State took over in the 1960s ;
- between 1972 and 1989, the Greater Copenhagen Council failed in its attempt to organise demographic growth which was, in fact, at a standstill ;
- today : sum of the plans drawn up by the five regions which make up this metropolitan area and a flagrant lack of a suitable organisational and governmental level.

It is within this institutional context, together with the entry of Sweden into the European Union, that the link with the Malmö-Lund agglomeration via the Oresund Bridge is taking shape.

Finally, mention must be made of the growing interest, since the end of the 1980s, in urban and regional marketing and strategic planning (cf. the Copenhagen Orestadsplan, the first global plan subject to a strategic objective : an increase in the region's productivity) as well as increasing ecological concerns.

1.2 Finland

The New Building Act and the Road Act are the two basic texts in the areas which concern this COST Action. The first dates from 1959 (and updates a 1931 text) ; it governs building, and more generally, land-use. It translates into two types of general plan - regional and municipal master plan -, and three types of detailed municipal plan - organisation of the town, building, and coastal areas. The system is hierarchical in the sense that the regional plan serves as a framework, and controls any modification of the more detailed plans. Road-building is governed by the 1954 Road Act. From the start, the two Acts have contained several articles relating to the way in which they interact. They are now being updated, and improvements in the

co-ordination between transport and planning is one of the principal aims of this revision.

Today, the most important legislation linking transport and regional planning is unquestionably the Act voted in 1994 on the evaluation of environmental impact, an Act which has enabled Finland to comply with the recent Brussels recommendations. Its primary objective is to encourage consideration of the environmental dimension in the widest sense of the term, and as far in advance as possible in the decision-making processes, and at the same time, to raise public awareness of environmental matters.

Regional planning began in Finland in the 1960s, a period of intensive road-building, mainly under the control of the corresponding government sector. The vital importance of a global approach was gradually being recognised at the same time as master plans were gaining in importance. At regional level, two types of plan were in operation from the end of the 1970s : a strategic medium to long-term plan, and regional plans of a more operational nature, one part of which involved the development of transport networks. These are supra-municipal plans opposable by landowners. After approval by the regional council, they are ratified by the Minister of the Environment (about half the country is concerned). The general objectives assigned to transport are decreed by the Minister of Communications and Transport, and an ad hoc parliamentary committee. (Plans at regional and local level are the responsibility of FINNRA and the districts respectively.)

It is considered that the principle of ensuring sustainable development should be at the heart of projects in both fields. This principle, of vital importance to society, has already been translated theoretically in terms of transport and planning policies. Mixed, dense urban poles where public transport is favoured (with intermodal policies for freight in particular) are intended to reduce unnecessary trips, costly for the community in terms of consumption of space, atmospheric pollution, etc.

1.4 France

The history of attempts at transport/planning co-ordination is, in this country, above all rich at urban level and really began in 1967 with the passing of the Land Orientation Act. This Act introduced a double planning system (both in town planning and in transport) which was both temporal and spatial. The background to this was a rural France attempting to organise an urban growth which was generating travel needs, involving the creation of new infrastructures. It was then that town and country planning master plans (SDAU) and preliminary transport infrastructure studies, based on traffic models using the socio-demographic data provided by the SDAU, were introduced. The reservation in the land-use plans (POS) of the space needed by the infrastructures was then organised at a lower level.

The 1970s, affected in particular by the oil crisis, saw a dramatic slowing-down of investments in roads and marked a concentration on short-term objectives. Procedures such as traffic plans were widely implemented locally and their objectives gradually widened from traffic management to urban development

(pedestrianisation of city centres, etc.). Institutional experiments, such as the creation of the Office of Transport Co-ordination for the Agglomeration of Marseilles, were also introduced at this time to try to overcome sectorial divisions.

The real turning-point came in 1982 with the passing of the Act on the Orientation of Domestic Transport (LOTI) which demanded a Right to transport for citizens and instituted urban mobility plans (PDU) which sought to organise mobility within urban areas under the responsibility of intercommunal authorities. The effective implementation of these plans was often difficult both administratively and politically (decentralisation etc.). But their concern for an inter-sectorial approach and the adoption of a medium to long-term perspective was also to be found in a certain number of other procedures, often connected to problems of road safety and urban redefinition, and which considered transport to be an important lever in urban development ("Safer towns, neighbourhoods without accidents", "Live and travel in town", etc.).

The necessity of a global approach is doubtless the paramount idea of the 1990s. The practical implications of this are both effective and in the course of development : means of funding exclusive right-of-way urban public transport, agglomeration highways procedures ("Dossiers de Voirie d'Agglomeration" - DVA), and the Air and Rationale Use of Energy Act of 30th December 1996 making the elaboration of an urban mobility plan (PDU) obligatory for agglomerations with more than 100,000 inhabitants.

As a rapid conclusion to this presentation, we will emphasise the preferred means (official and unofficial) in France for trying to co-ordinate town planning and transport : the formulation of procedures, the creation of technical and political bodies, and also the necessarily informal networks of interpersonal relationships.

1.5 Italy

A selection of significant experiments given in the order they were introduced, will enable us to understand the stakes as they came to be recognised over the years, as well as the determining factors in policy shifts in the fields under study.

- 1950s : development of national infrastructures and individual transport in the context of the post-war economic explosion, with no real concern for planning ;
- 1960s : preoccupation with the country's development (policy of development poles) in which transport did not appear as a strategic sector ;
- 1970s : emergence of the need for regional planning and recognition of the Regions as players in their own right - the Regions sought to legitimise their role. The accent was on intersectorial relationships in general, but with no particular attention paid to the relationship between transport and planning, except in theory (failures in implementation resulted in increased exhortations to policy co-ordination) ;
- 1980s : criticism regarding the ineffectiveness of policies led to the formalisation of new planning instruments intended above all to make sectorial projects in the same region coherent ("Piani d'area, "Progetti Operativi"), whilst criticism concerning the lack of attention given to the spatial effect of the

infrastructures resulted in experiments in environmental impact assessment. Attention at the time was increasingly focused on the metropolitan level. On the one hand this was linked to the crises in the cities (environment, social problems, deprived sectors, etc.), and on the other, it restored transport to its rightful place in the debate, transport which some saw as an important factor in urban renewal (cf. in particular the "Progetti integrati" of the "Piano generale dei trasporti" involving thirteen Italian agglomerations. Experiments in strategic planning were launched (the Milan underground) and the importance of co-operation between the various institutional and sectorial players was recognised and led to the formalisation of co-ordination procedures ("Protocollo d'accordo" in integrated projects) ;

- 1990s : an enlargement in the scales considered relevant for action took place at the beginning of the 1990s. It was accompanied by institutional "grooming", establishing the districts ("Provincia") as responsible players in urban planning and transport, and by the setting-up of procedures intended to organise co-operation between all parties wishing to be involved in the projects ("Accordi di programa", etc.).

1.6 Spain

A national development plan does not, at present, exist, although certain autonomous communities possess them. A master infrastructure plan at national level was produced in 1994 (to be effective in 2007). The aim of this is to structure Spain whilst organising the debate concerning its implementation, and also give it a European dimension. To do this, the emphasis has been placed on roads, both for the transport of goods and of persons, nonetheless completed in the major agglomerations by intermodal transport plans intended to promote public transport in the interests of the environment.

Recognised by the 1978 Constitution, the autonomous communities have benefited notably from a transfer of responsibilities with regard to road transport. They are now not only in charge of managing the national network in their region, but can also draw up plans for motorways independently of central government, which is what most of them did between 1982 and 1990. In addition, they developed these regional road plans into planning tools, realising that improving accessibility was an important factor in development and in the reduction of regional inequalities.

Finally, the example of Barcelona leads one to think that plans at metropolitan level are seen as interpretations of regional plans.

1.7 Switzerland

The key-words characterising the institutional context in Switzerland are unquestionably decentralisation and direct democracy (as well as opportunities for direct intervention by citizens, particularly with regard to town-planning and monitoring respect for building regulations).

The general framework concerning planning is provided by the recent Town and Country Planning Act (LAT) whose recommendations are then interpreted - fairly

loosely - by the lower institutional levels (cantons and communes) when decisions are taken. The Act emphasises co-ordination between local development and environmental protection and the link between planning and transport emerges explicitly. This is also the case, although more indirectly, in the Environmental Protection Act (completed by the Opair and OPB federal orders which set strict standards with regard to atmospheric and noise pollution) to the extent that it has led to the implementation, on a local scale, of plans for severe measures for individual motorised traffic, which are likely to have direct consequences on urban planning.

With regard to transport, major infrastructures (regular inter-pole trains, and motorways) are the responsibility of the Confederation. New mobility practices nonetheless mean that they are used as a daily means of transport. In Switzerland, the development of the towns in recent years has been marked by a metropolisation characterised by the expansion of the space people use on a daily basis (extension of the hinterlands of urban poles, and agglomerations operating as a network). Against a background of stable time-budgets, the development of the major transport infrastructures is thus a direct determinant of the restructuring of urban forms. "Official" urban transport (public transport and highway management) meanwhile, is the responsibility of the cantons and/or communes.

The local is clearly an important level of decision-making. This explains the clear dichotomy which can at present be observed between French and German-speaking Switzerland in the way in which the transport/town planning relationship is organised and managed.

2. Lessons which can be learnt from the confrontation of these practices

Firstly, one must not forget the difficulties inherent in the exercise. The need for extreme simplification made the writing of the national overviews difficult. The problem was exacerbated where the country is decentralised and local situations are characteristic of the region ; the attempt at synthesising the material, and at the same time making comparisons, is consequently made more difficult.

The results obtained thus vary in nature and are not easily comparable.

One reason for this may be the inevitable disparities in the way in which the attribution of the division of authority, and the presentation of the administrative and institutional context of the country, has been presented. The spatial scales highlighted in the notes on the countries, because it is these which are the most interesting in the light of national options and action, are also very often different. Finally, one must mention the heterogeneity of the time-scales adopted, notably as a result, once again, of the varying degrees of relevance to each country of providing a chronological break-down of the organisation of transport, planning, and the management of the relationship between projects and policies in these two sectors over the last fifty years.

A certain number of salient points, common to all countries, nonetheless deserve to be mentioned.

Amongst the triggers of development in joint planning practices, the importance of environmental concerns appears in several cases (this is particularly clear in Switzerland and Finland, but also appears in Denmark, Italy, Spain and England, and is finally emerging in France and Austria : Bruntland report).

Another determining factor is to be found in the general transformations of the politico-legal system (this is the case in Spain with the constitution of autonomous communities seeking legitimising fields of intervention and also, although to a lesser degree, relates to the process of building Europe ; we must also remember the community requirements for Austria or Sweden's entry into the European Union).

Finally, the relatively recent* character of the formalisation of procedures which explicitly seek to link and standardise decisions taken in the fields of transport and planning should be noted (* "recent" should be understood as being subsequent to the "intellectual" recognition of interactions).

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CASE STUDIES

THE CROSS-BORDER REGION OF SOUTH SCANDINAVIA (DENMARK/SWEDEN) : AN EUROPEAN PERSPECTIVE

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1. Abstract

The planned bridge between Copenhagen and Malmö on the Swedish side of the Sound, combined with Swedish entrance into EU, open up for development of the first cross-national integrated large-city region outside the European centre. A fusion of Greater Copenhagen and the Malmö-Lund agglomeration gives the two hitherto non-interdependent urban economies access to more specialisation and opens up for co-operation as yet unforeseen. Synergy will be an obvious consequence. Building this bridge is a mega-event in itself but using the event as a tool in strategic planning is a challenge. The turbulent situation as regards all planning issues, environmental-regional versus sectorplanning-transportation gives the region status as laboratory in scale 1:1 for creating new institutional management for planning.

Keywords: Transport planning, Land-use policies, institutional arrangements, South-Scandinavia.

2. Introduction

The South Scandinavian scene represents an area outside the European centre where development towards a cross-border regions is obvious. These trends comprehend a capital which is also among the 25 metropolitan units of the continent. It is in many respects an interesting laboratory of integration and of changes of the major units in the urban system. What can be foreseen is a growth in competitive vitality and a change in hinterland, not a parallel to the development of a network of the kind present in the European centre.

The tumults of metropolitan government (Greater Copenhagen Council was abolished 1990) have removed the coordinating and decisive level of government for the danish part of the region. As in many other metropolitan units the leaders of Copenhagen have recently adopted urban marketing and strategic planning. As in most other urban units this has by no means been done wholeheartedly. At best, one can identify fragments of such activities. Planning and strategy formulation still are in the hands of the 50 municipalities and 5 counties of Greater Copenhagen. But new organisations have been established covering the whole region and given responsibilities and means. This has been done as cooperative operations with municipal, county and national government participation and also with private business and organisations as partners. "Wonderful Copenhagen" is a new organisation which has the objective to attract tourists and "Copenhagen Capacity" is a parallel organisation focusing on investments. The organisations were established in 1993 with yearly budgets of 2-4 millions ECU each, and with larger budgets in

forthcoming years. They are seen as forerunners of a reformation of the planning system on the regional level, which is given national priority for Greater Copenhagen. On the Swedish side of the Øresund waters the situation comes close to the Copenhagen planning theatre. Three counties and 33 municipalities produces plans and strategies for development. Actions have been taken in Sweden to combine counties as a regional government experiment. But actual national government in both Sweden and Denmark plays a major role when it comes to environmental and sector planning. Within the whole Öresund-region only fragments of co-operation is presented, but a lot of discussions about the issue are produced.

3. The European Urban System

Many large European cities have been developed during the phases of industrialisation. The reasons are clear: harbours and railroad systems were concentrated and demanded or facilitated large scale plants and production. The advantages of concentration was reinforced by the location pattern of finance and higher education. The urban system that developed during the industrialisation phase was based on the pre-industrial urban system, where especially the capital cities were important nodes.

The original advantages of agglomeration have slowly but constantly been broken down. Today high speed and densely developed networks for telecommunication, person- and goodstransportation dominate. Most locations are accessible to import and export of standardised products and information. This is probably the major reason behind the exodus of traditional manufacturing industries from those large city regions which are under transformation into a post-industrial structure. Qualified large-city regions have no comparative advantages to simple industrial production. The actual advantages of a large scale are found in contacts with customers in the transferring of knowledge and in the fabric of decision making.

Europe has around 500 urban agglomerations of more than 100,000 inhabitants (estimate). In table 1, the largest European urban agglomerations are presented. They are delimited in the same way all over Europe as functional, consolidated urban areas. All agglomerations have been identified as "greater-" urban units on the basis of detailed topographical maps. The data are the latest available and are estimated on the basis of various statistics. Estimates of Eastern Europe are more uncertain than of Western Europe.

The other type of size indicator listed in table 1 is also an estimate. Estimates of "gross agglomeration product" are based on data on population, gross national and regional products, and specific judgements. A homogenous method of estimate has been given priority. Compared with the ranking of agglomerations according to population size, East- and South European cities are ranked low, North European cities high.

Air traffic is a highly important link between superior international activities. Besides tourists, important users of the air network are decision-makers, knowledge handlers, administrators, and other advanced personnel. Table 2 presents international passenger traffic measured in terms of embarking and disembarking

persons. The urban agglomeration is the unit so if there is more than one airport in a city (as for instance in London) their figures are totalled. The figures indicate potential accessibility to the very important network of decision making. London has an outstanding lead, being twice the size of "number two". Three cities follow: Paris, Frankfurt and Randstadt. A third level consists of 7 units: Zürich, Copenhagen, Rhein-Ruhr, Rome, Palma, and Manchester. East European centres are almost absent and North Europe is over-represented compared with population data.

More and more urban activities can be described as being knowledge and information-based. Investment and employment are increasingly reflecting the transformation of the economy from being capital-intensive to information-intensive, (Capello & Nijkamp, 1991). An increasing number of activities are now associated with the production, collection, manipulation, storage, and distribution of information. Innovation is a strategic resource for firms and is closely connected with urban growth. Andersson & Strömquist (1989) have given the label "creativity" to this growing base of wealth production. Creativity is defined as the production and handling of: technical, cultural, social, and organisational innovations. Communication capacity, cognitive skill, knowledge availability, and the supply of creative and cultural capacities are development factors. Excellence in all areas is a principal growth factor. Rapid development is favoured by universities and other research facilities, and by advanced and efficient telecommunication networks, other information technology equipment, and fast passenger transport systems. The increasing importance of the creativity sector is associated with the renewal of the economic system in Europe towards dynamic product competition. Andersson and Matthiessen (1993) have presented a new study of the creativity base of large European agglomerations, see table 2. The data are articles in the 3000 most cited refereed scientific periodicals within natural science, medicine and technical science 1988-91. London is the European leader followed by Paris, Moscow and Randstad. The next level consists of Stockholm, Rhein-Ruhr, Brussels, Glasgow, Frankfurt, Manchester, Birmingham, Copenhagen, Munich, Berlin, and Cambridge. It is interesting to find that Northwestern Europe concentrates these centres of scientific production to a high extent. Only Moscow is an exception to this and no other Eastern or Southern European agglomeration produces scientific output proportional to their mass measured as population.

There is no general agreement on a formal definition of metropolitan status but many would consent to a definition as the one presented here. Metropolitan functions are: communication node, financial centre, culture, entertainment, top level private services, science, higher education, and economic leadership. Metropolitan units are the focal points of the exchange of communication and the exercise of competition. They have the capacity of innovation and adaptability. Metropolises exhibit an urban product of high quality and it is often within them that person productivity is highest and income is above average. On the basis of this kind of functional definition and on the data listed in tables 1 and 2, it is estimated that 25 European urban units can be characterised as metropolises. Operational definition: urban agglomerations larger than 1 million inhabitants with a combined percentage of total BNP, percentage of international air passengers and percentage of scientific output which give a rank between the 25 agglomerations ranking highest. The thus defined metropolitan units are indicated on the map in figure 1. Symbol size is proportional with the scores. On

the map the European urban centre is also indicated. This centre is delimited according to Reclus (1989) and comprehends 50 percent of all economic activity of the continent.

Within the European centre 13 of Europe's 25 metropolitan units are found. They are interdependent and competing. The labour markets overlap and the urban functions (for instance airports) are often shared between cities. Hinterlands are not clearly delimited. Many large units are strongly specialised. There is a certain amount of division of labour between cities. There is no clear urban hierarchy. The metropolitan areas are congested, environments are under press, and prices of land are very high. The disadvantages of agglomeration are obvious.

Outside the central parts of Europe the network of large units with metropolitan status is less dense. To the north and east there are: Glasgow-Edinburgh, Stockholm, Copenhagen, Hamburg, Berlin, Vienna, St. Petersburg and Moscow. To the south they are Madrid, Barcelona, Rome and Athens. Each of these cities dominates large areas and plays leading roles on the urban scene.

The European metropolises are competitors and also compete with the cities on other levels in the urban hierarchy. Competition has for example to do with new locations of companies and institutions, or it has to do with attracting customers from a shared hinterland.

The post-1991 European urban scene is a scene of both growth and decline. It is a scene of turbulence and of changing potential. The large urban agglomerations have the opportunity to acquire new and important roles as centres of regions in a new "Europe of regions". The latent potential of large cities is under pressure to be realised through a more and more competitive situation. Although the economy of urban units is linked to national and international economy and politics, their urban product is highly influenced by their own government (Berg et al, 1990).

The future of the large agglomerations of Western Europe depends much on their ability to anticipate and accommodate innovations. The trends and opportunities of the 1990s will be influenced by new growth factors. West European integration (the Single Market Act) will probably play a major role, and the opening of the East European market and possible enlargements of the EEC will also be important. New infrastructure investments (TGV-trains, tunnels and bridges), and the growing environmental concern will alter the scene.

Some of the old patterns of growth location will break down, although the European centre (see figure 1) will take on its share of new activity. The disadvantages of agglomeration; congestion, land prices, and pollution are a problem, especially in the European centre. Other growth centres will be identified as promising. This will be the case for metropolitan and capital units with large, rich regions outside the traditional centre. New areas, such as in Eastern Europe, will be given the status of peripheral areas and receive subsidies, while the old peripheral regions of the Atlantic fringe and South-eastern Europe will lag further behind. A possible downturn in the Mediterranean growth might be expected as investors shift their

focus from south to east. A regionalization of Eastern Europe is a realistic alternative to pre-1991 centralisation.

Some of the large units of Europe have the potential to change and experience rapid growth. This is a consequence of new qualities and characteristics, Berlin being an obvious example as the coming capital of Germany. And Lille, as the planned node of the TGV-trainlines, as well as a series of airport towns, becoming the new gateways to Eastern Europe, are other examples of such new characteristics. The capitals of new nations will evolve and take their place in the first line of important centres. Then there is Copenhagen, where new growth potential has been created by the decision to construct a fixed link across the Strait of Öresund (the Sound) to Sweden which will lead to greater organisational integration with the large urban centres of Southern Sweden. The distance between Copenhagen and Malmö is only 18 kilometres. In 1996, Öresund along with Swedish non-membership of EEC creates a strong barrier. By 2001, this barrier will probably belong to history.

4. The missing South Scandinavian Links

Island location is an expenditure for road and rail traffic. The cost can be measured as the equivalent to that of 2 extra hours on the road or rails both ways. But certainly island location is an advantage to the 2.3 mio. people who live on the almost 10.000 km² of Zealand (incl. nearby minor islands). Nowhere on this island is the distance to the sea more than 30 km. Beaches, marinas, and fishing hamlets are numerous along the 2300 km of coastline. The nature of the coastal environments adds up to the attractiveness.

South Scandinavian geography represents a crossroad scene. The straits between the Baltic and the oceans of the world delimit the Danish islands and the peninsulas of Jutland and Scandinavia. Sea going traffic is intense and is expected to increase when the East European nations catch up in international trade.

Ferrylines crossing the straits connect the Danish networks of railroads and motorways with the German and Swedish rails and roads. See figure 2. Between Zealand and Germany, the trip takes the large combined rail and car ferries 1 hour (plus 1 hour handling time, plus waiting time), and there are around 40 departures each way every day. The line between Zealand and the continental parts of Denmark takes 1 hour as well (plus 1/4 of an hour of handling time, plus waiting time). Together different kinds of ferries (trains, cars, trucks, passengers) depart close to 100 times every day each way. Seven lines connect Zealand with Southern Sweden. Between downtown Copenhagen and downtown Malmö hydrofoils carry businessmen and tourists (40 minutes, 50 daily departures each way). Passengers landing in Copenhagen Airport may continue to downtown Malmö by hovercraft (35 minutes, 11 daily departures). Train ferries, car ferries, and combined ships leave Greater Copenhagen for South Sweden more than 200 times each day (25 minutes for the shortest crossing from Elsinore). To the transport time come handling operations and waiting time. To complement the picture of ferry connections crossing between Scandinavia and the European continent, it should be mentioned that there are different direct lines between Sweden and Germany, and between

Sweden and the Danish peninsula of Jutland (3-8 hours of crossing, plus handling and waiting).

Three of the Scandinavian straits are considered as missing fixed links. They are the Storebelt link between the islands of Zealand and Funen (Funen is linked to the European continent by bridges), the Sound between Zealand and Sweden, and the Femarbelt between Zealand and the German island of Femar (Femar is linked to the European continent by a bridge). Each of the straits is close to 18 km in width.

The missing links present different barriers. Storebelt is a time and price barrier of a magnitude which could be compared to a road distance of about 120 km. The two others also function as national borders, languages are different and so are culture and economy. In addition, the Sound is an EEC-border. It also represents an efficient hindrance to the integration of Danish capital (Copenhagen, 1.6 mio. inhb.) and the Malmö-Lund agglomeration (0.5 mio. inhb.) on the Swedish side of the Sound, see figure 3.

The Storebelt link is under construction and should be open to traffic in 1998. The Sound link is agreed upon by Danish and Swedish governments and the agreement is signed. It should be ready in 2001. The Femarbelt link is discussed on Danish-German government level and is strongly advocated by the Swedish government.

5. Cross border integration

On the European ranking lists Copenhagen is ranked no. 32 in size of agglomeration population, and the city is no. 16 when size is measured as a gross agglomeration product. When the measure is creativity (knowledge, culture, and communication: innovations) Copenhagen ranks no. 12 in Europe and no. 6 concerning international air-passenger traffic (see Andersen & Matthiessen, 1995).

By adding figures from the Swedish side of the Sound to the Copenhagen figures, the rank shifts. Altogether, the towns within a radius of 50 kilometres from Copenhagen Airport are one of the five largest agglomerations of Europe as regards creativity. This Danish-Swedish agglomeration also represents one of the largest population concentrations in Northern Europe, no. 20 on the European list. To find larger neighbours you have to go to Rhein-Ruhr, Berlin, Warsaw, or St. Petersburg. In addition, Copenhagen, Malmö, and Lund are high-income cities compared with the European average. The new rank measured as gross agglomeration product is 8. When international passengers departing from the airport of Malmö are added to Copenhagen figures, the total increases, but not enough to change the rank. Adding figures do not create any new role for the South Scandinavian urban region. But it illustrates potentials. Critical masses are overcome without much investments apart from the bridge.

To the changes of ranks will come the changing potential of growth. In 1996, Copenhagen is the centre of Denmark (5 million inhabitants). At the turn of the century, the new Danish-Swedish agglomeration could be the centre of the whole South-Scandinavian region (8-9 mio. inhb.). The consequence will be a large-scale

change of dominance and hinterland on the Copenhagen - Stockholm level, for example when it comes to the use of international airports.

A fusion of Greater Copenhagen and the Malmö-Lund agglomeration gives the two hitherto non-interdependent urban economies access to more specialisation and opens up for co-operation not thought of yet. Synergy will be an obvious consequence. To this change in growth potentials effects of new optimism and of rise in world interest due to the event itself will be added. Large-scale engineering and construction are of international interest, and a fusion of two agglomerations, which co-operate very little at present, is a world-class event. In many respects Copenhagen together with the South Scandinavian centres are expected to increase economic growth when the missing transportation links between Scandinavia and the European continent are substituted by fixed links and regional organisation is integrated. The arguments are illustrated in figure 4.

The South Scandinavian scene represents an area outside the European centre where development towards cross-border regions is obvious. These trends comprehend a capital which is also among the 25 metropolitan units of the continent. It is in many respects an interesting laboratory of integration and of changes of the major units in the urban system. The distance between Copenhagen and the nearest neighbours of size is large, and tendencies to a revolution in specialisation of the units of South Scandinavia are few. What can be foreseen is a growth in competition and a change in hinterland, not a parallel to the development of a network of the kind present in the European centre.

The construction of the bridge is a mega-event in itself, but using the event as a tool in strategic planning is a challenge. The turbulent situation as regards all planning issues renders the region status as laboratory on a scale of 1:1 for creating new institutional arrangements for management and planning. This will highlight innovatory co-ordination arrangements between the different types of planning institutions in the Öresund region, in order to formalise their relative adaptability to interaction mechanisms, and to assess their effectiveness in relation to the context and effects of their implementation. Development of the large cross-boundary infrastructure is going to alter the spatial organisation of the territory, which again will encourage cross-border collaboration in institutional planning processes. This will activate creative and innovative new arrangements for co-ordination which correspond to innovations as regards institutions, procedures, management or any public action tool explicitly in charge of the co-ordination between sectorial planning on the one side and environmental/regional planning on the other.

6. Research proposal

The proposal is to highlight innovatory co-ordination arrangements between the different categories of planning institutions in the Øresundsregion, to formalise their relative adaptability to the interaction mechanisms, and to assess their effectiveness in relation to the context and effect of their implementation. The proposal is further through a scientific approach to study how development of the large cross-boundary infrastructure is going to alter the spatial organisation of the territory, which again will encourage to bring closer institutional cross-border planning processes. The

proposal is further to present creative and innovative new arrangements for co-ordination, which correspond to innovations as regards institutions, procedures, management or any public action tool explicitly in charge of the co-ordination between sectorial planning on the one side and environmental/regional planning on the other. Such presentations of new ideas based on the live laboratory of the Øresundsregion should at least refer to management based on the functioning of networks of actors instead of activating hierarchical authority.

It is the plan to set up a study group of researchers, within the fields of regional economics, geography, environment and political science. The group will conduct workshops with researchers, politicians, business and entrepreneurs. They will review and discuss ideas and give proposals. Seminars and publications will be planned. The study group is working in co-operation with local actors, such as for example the Øresundcommittee, Municipality of Copenhagen, other important regional or local authorities, and Chambers of Commerce. The study will be presented as case study on the international scene.

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Population mio. inhb.		"Gross agglomeration product" bio. US \$	
Rhein-Ruhr	10,4	Rhein-Ruhr	205
Paris	8,7	Paris	164
Moscow	8,6	London	125
London	7,7	Randstad	87
Randstad	5,6	Milan	61
St. Petersburg	4,9	Manch.-Liverpool	54
Madrid	4,4	Frankfurt	53
Manch.-Liverpool	4,1	Moscow	46
Milan	3,6	Sheffield-Leeds	45
Barcelona	3,4	Rome	42
Sheffield-Leeds	3,4	Birmingham	40
Katowice	3,3	Stuttgart	39
Berlin	3,1	Hamburg	39
Athens	3,0	Barcelona	37
Rome	3,0	Berlin	34
Birmingham	2,7	Copenhagen	34
Frankfurt	2,7	Munich	34
Budapest	2,5	Vienna	33
Kiev	2,4	Madrid	31
Naples	2,4	Stockholm	29
Warsaw	2,1	Zürich	28
Lisbon	2,1	Turin	27
Stuttgart	2,0	St. Petersburg	24
Hamburg	2,0	Naples	24
Vienna	2,0	Mannheim	24
Bucharest	1,9	Glasgow	22
Glasgow	1,7	Helsinki	21
Munich	1,7	Brussels	20
Turin	1,6	Hannover	20
Prague	1,6	Lyon	19
Kharkov	1,6	Genoa	17
Copenhagen	1,6	Marseilles	17
Stockholm	1,6	Nürnberg	17
Minsk	1,5	Gothenburg	17
Oporto	1,4	Oslo	16
Belgrade	1,4	Bremen	16
Brussels	1,3	Athens	16
Valencia	1,2	Lille	15
Brno	1,2	Newcastle	15
Chemnitz	1,2	Saarbrücken	15

Table 1. Large urban agglomerations around 1990. Population and "gross agglomeration product".

Embarked plus disembarked air passengers 1989 (*1000)		articles 1988-91	
London	55009	London-Oxford	115500
Paris	27441	Paris	86921
Frankfurt	19532	Moscow	75292
Randstad	15507	Randstad	42702
Zürich	10999	Stockholm-Uppsala	29480
Copenhagen	9098	Rhein-Ruhr	28989
Rhein-Ruhr	9010	Brussels-Antwerpen	27509
Rome	8498	Glasgow-Edinburgh	23980
Palma	8415	Frankfurt-Mainz	23955
Manchester	8139	Manchester-Liverpool	23842
Brussels	6869	Birmingham-Nottingham	22786
Madrid	6564	Copenhagen	22110
Milan	6303	Munich	21862
Athens	6234	Berlin	20396
Munich	6128	Cambridge	19394
Stockholm	6086	Bristol-Cardiff	17896
Moscow	5413	St. Petersburg	17254
Helsinki	5098	Milan-Pavia	17223
Vienna	4706	Heidelberg-Karlsruhe	17179
Dublin	4692	Sheffield-Leeds	15800
Geneva	4583	Kiev	15100
Malaga	3844	Madrid	15034
Oslo	3490	Stuttgart	15026
Lisbon	3413	Rome	14911
Barcelona	3002	Geneva-Lausanne	14145
Hamburg	2893	Nijmegen-Eindhoven	13596
Birmingham	2608	Helsinki	12897
Lanarca	2535	Bologna-Parma	12571
Budapest	2367	Zürich	12276
Faro	2273	Malmö-Lund	12265
Alicante	2215	Aachen-Liege	11960
Stuttgärt	2200	Vienna	11261
Ibiza	1969	Barcelona	11005
Nice	1856	Grenoble	10460
Malta	1779	Basel-Mullhouse	9722
Prague	1767	Budapest	9426
Lyon	1748	Warsaw	9119
Gothenburg	1622	Prague	9079
Marseilles	1621	Gothenburg	8786
Glasgow	1548	Newcastle	8706

Table 2. Large urban agglomerations around 1990. International air traffic and scientific output

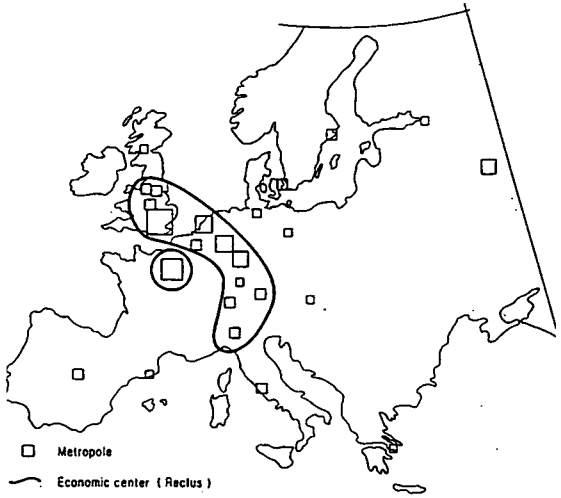


Figure 1. The European centre (after Reclus, 1989). 25 metropolitan units indicated (for definition see text).

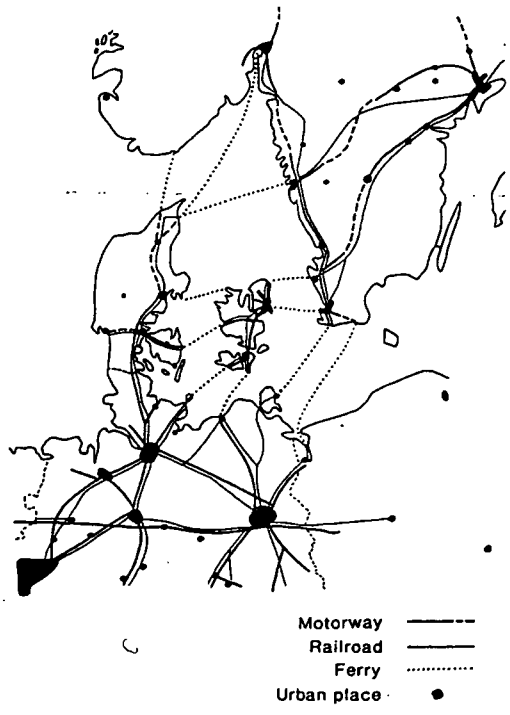


Figure 2. Geography of Denmark and surroundings. Distance measured as time.

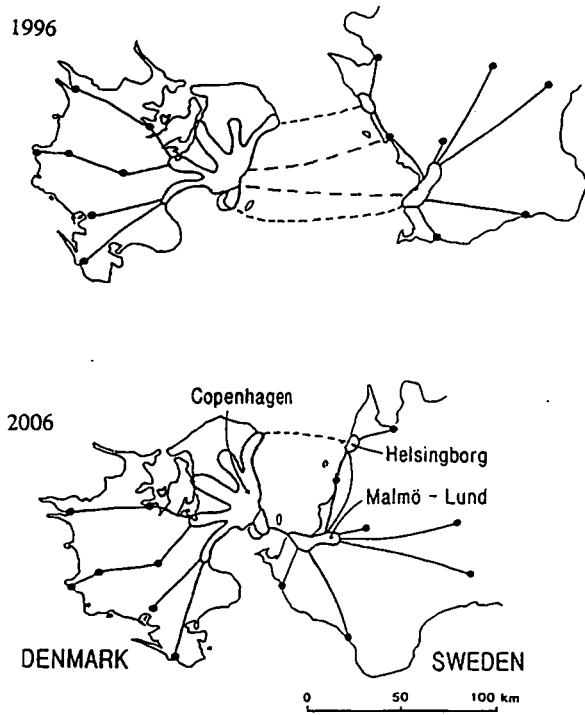


Figure 3. Copenhagen and Malmö-Lund. Pre- and post-bridge situation. De facto time distance indicated. Urban areas delimited. Dotted lines: ferry services.

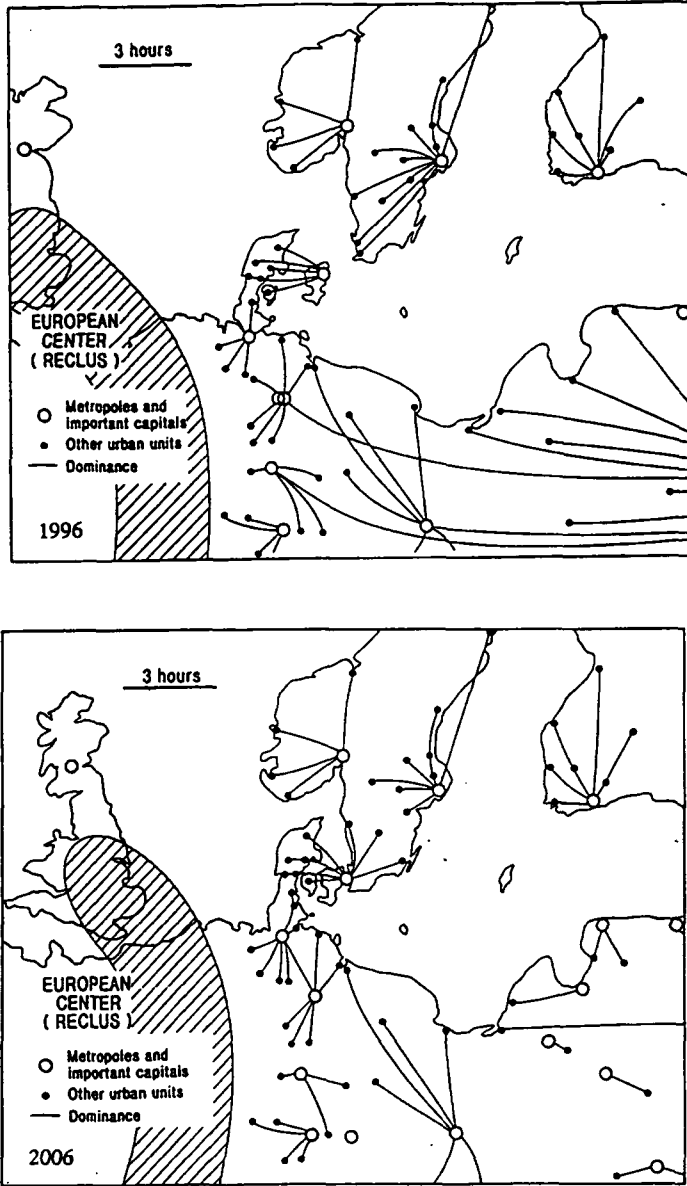


Figure 4. Northern Europe 1996 and 2006. The changing role of Copenhagen is illustrated by sketches of urban networks.

THE CROSS-BORDER REGION OF SOUTH SCANDINAVIA : A LOCAL PERSPECTIVE

Anders TINGVAR
Planning Director city of Lund

In the cross-border region of south Scandinavia (Denmark/Sweden) - the Oresund-region - you will find on the Swedish side the municipality of Lund. It is located 10-30 km from the coast and has about 100.000 inhabitants. In the city there is the Lund University with 35.000 students, the centre of regional health care and its administration and also some of the most successful companies in Sweden.

My name is Anders Tingvar. Since 1989 I am director of the Planning Department in the municipality of Lund. As official I am also taking part in some rather strong political efforts that now are made to create a new regional administrative structure, a quite new association for the county of Skane with about 1,1 Million inhabitants. The Oresund region has about 3 Million inhabitants.

I'll try to give some information about the Swedish approach and steps that are on the regional agenda right now, how we perhaps will be able to coop with the issues of co-ordination of transport policies and land use planning policies in Skane but simultaneously in the entire cross-border region.

1. General aspects

My ideas and statements are made from a local point of view. I work close to the taxpayers and the local and regional politicians. This forces me to think within the terms of local politics and practical democracy based on old Swedish tradition.

Compared to Denmark the municipalities in Sweden are rather big. In Skane there are 33 municipalities from which Malmö is the biggest with about 250.000 inhabitants and some of the smallest have about 10-15.000 inhabitants. This however gives the Swedish municipalities capacity to handle comprehensive and local planning in a quite ambitious way, I think.

The co-ordination with surrounding municipalities and with the transportation planning system is - I'm afraid - not so developed.

As in most other European countries the transport policy's in Sweden are mainly made up on national level. The implementation of road-, railway- and public transport-projects are usually carried through almost without any dialogue on local level. In general I would say that transport policies are managed by people quite far from ordinary people, the voters. One reason is that the regional level (in Sweden) where the implementation often should be made, has no democratic structure that can handle the necessary dialogue and co-ordination with local land use planning. Consequently there is no tradition in Sweden ,except in the Stockholm-area, for a systematic regional planning. In the Swedish part of the cross-border region this has

been a serious problem for many years - the municipalities have refused to take appropriate measures and legislation (like Denmark e.g.) has not been given.

In connection to the agreement on the Fixed Link between Sweden and Denmark 1991, the Swedish government urgently requested the region to set up an organisation to carry out the necessary negotiations about road- and railway-projects as well as a general public transport policy for the Swedish part of the region. At that time there was no alternative but the regional association for public transport. Formal mandates were given from the municipals, but the co-ordination with the local land use planning failed (no time for talks). Two different agreements were made with the government. In both cases the results are characterised by a "deficit of democracy". A third agreement (letter of intent) has recently been made about the so called City-Tunnel in Malm^o with a similar deficit, I would say. From a formal point of view no charges can be made. However, the local level - where land use policy and plans are made according to Swedish legislation - had no influence at all on these three agreements.

This illustrates the dilemma not only to co-ordinate transport policies and land use policies but also the problem with deficit of democracy.

On the 4th of September 1996 there was a conference in Copenhagen with the two prime Ministers Mr Paul Nyrup Rasmusen from Denmark and Mr Gran Persson from Sweden. They agreed on three important issues for the Oresund cross-border region to coop with;

1. Reducing the high level of unemployment (8-10%)
2. This region shall become one of the cleanest big-city-regions in Europe and one of the leading regions in creating a sustainable society
3. The Oresund-region has an important role, not only on environmental issues but also to strengthen peace and security in the Baltic Region.

On number 2. above there will be another top-meeting in October 1996 to work out a special Baltic Agenda 21. Transport- and energy-policies, infrastructure, agriculture, spatial development and land use planning will be discussed. The democracy aspect will be underlined as well.

This kind of multinational efforts in the Baltic Region supported and partly financed by the EU, give a strong impact to regional and local initiatives.

Could perhaps spatial development not only co-ordinate transport policies and land use policies but also connect the three burning topics into a strategy for the future?

2. Approach, structure and vision

What steps are taken on the Swedish side of the cross-border region to contribute to a new strategy for spatial planning and development?

On a local level e.g. the community of Lund tries to define the relation between the Agenda-21 process and the spatial planning as follows:

The ecological (A), the economical (B) and the social (C) aspects sooner or later must be co-ordinated to make the society sustainable. The Agenda-21 process represents the force that will hopefully make this happen.

The spatial planning reflects this process over time in terms of land use planning policies and topographic structures.

In June 1994 a working-group of local politicians in Skane made the following statement about the need of a new regional arena for structural and environmental planning in Skane:

An agreement must be achieved where local planning and projects are influenced by regional and national aspects and where the government accepts local impact on how money should be used .

The region is an appropriate arena for this kind of co-operation.

During 1995-96 the working group has made a series of local conferences in Skane in order to implement this general approach and also to present a more specified structure that can manage a well co-ordinated planning process for future regional planning. The project is quite successful so far, I think.

Contemporary the Swedish government has made proposals to the parliament about new legislation that will make it possible on the 1st of July 1997 to establish a new regional political association - a kind of regional parliament.

This association will be given almost full responsibility for the regional development concerning a program for spatial development (economic growth, environmental and natural preservation, social welfare and health, land use planning and traffic policies). An evaluation will be made in 2002.

Probably regional planning will start in 1997. The new organisation has to build on a great deal of local confidence (local conferences) and must coop with the co-ordination of transport policies and land use planning policies. In a successful organisational structure there will be one regional planning board for spatial planning and for financial priorities. The board presents proposals to the council board where decisions are made.

The local conferences are of greatest importance to get local understanding and commitment in many subjects. The conferences will be organised by the municipäls together with the regional department of regional planning and the number of members will depend on the kind of issues on the agenda. Notes can be made about agreements as well as failures that must be handled by the board. Proposals co-ordinated with the local plans will be brought to the board. Financial priorities and negotiations will be made. Decisions will be taken by the council board and if necessary confirmed by the parliament.

This structure makes it possible to co-ordinate policies in a "bottom-up"-way. That gives a rather open system, which is a guarantee against a deficit of democracy.

If we are lucky this structure will be appropriate to match the Danish legislation and organisation for planning and co-ordination of policies. The frame-law structure there seems to give possibilities.

In that case the first step into an integrated "planning machine" could be based on cross-border agreements about issues and policies on different levels in a parallel structure.

No new formal institutions will be required, the co-ordination will start ad hoc.

As an example you can mention the Oresund Fixed Link agreement on national level and the following actions in the cross-border region. There is also an agreement on a program about environmental policies and protection.

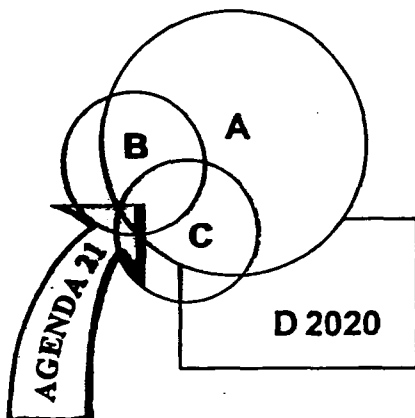
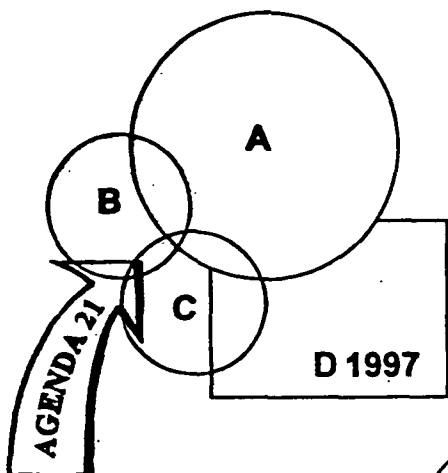
A few years ago the ORESUND-COMMITTEE was founded. It consists of leading politicians from the regional and local authorities on both sides of Oresund, as well as representatives from the Danish and the Swedish states. Connected to the Oresund committee is a group formed from leading officials of the local governments. The daily management is provided by a secretariat based in Copenhagen.

The main task of the committee is to work for economic progress and a social and environmental development of the Oresund region. It shall prepare and implement strategies and action programmes to encourage development across the sound respecting social and cultural identities.

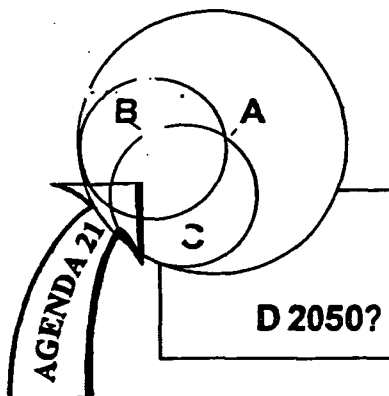
One issue is the future policy for public transport on the fixed link, where the committee has made some rather heavy statements to put pressure on the acting parts.

This gives you an idea of a second step. I think that rather soon further tasks will be put on the committee. If you think of the 3 Million people living in the region, the committee should have access to a professional Think Tank independent from the institutional organisations. So far I think we'll have a rather powerful planning-machine; the results come out from political agreements (policies) which then can be implemented in the local and regional organisations. New legislation will not be required. This step could be developed very far as long as the leading politicians are engaged in the committee.

The third step, I would say, will require new legislation

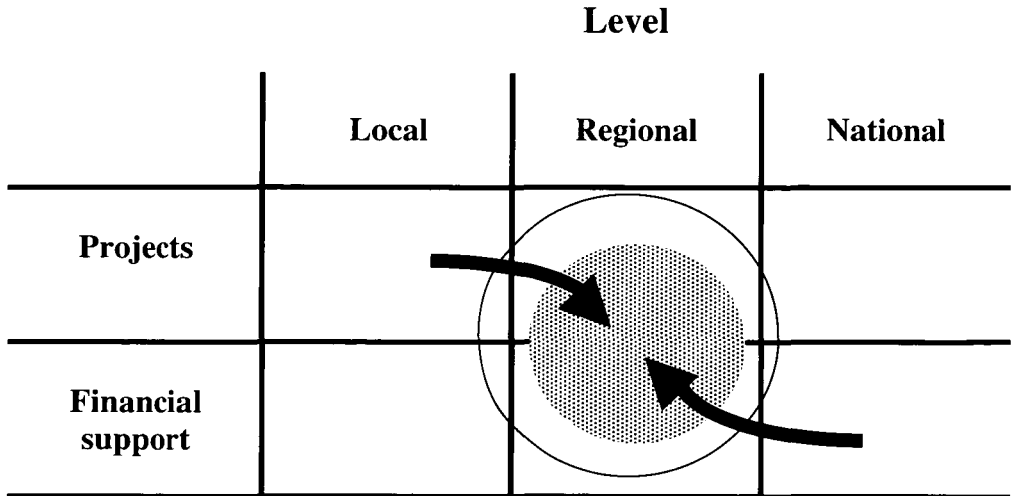


- A = Ecological aspect**
- B = Economic aspect**
- C = Social aspect**
- D = Comprehensive plan
1997, 2020 and 2050**

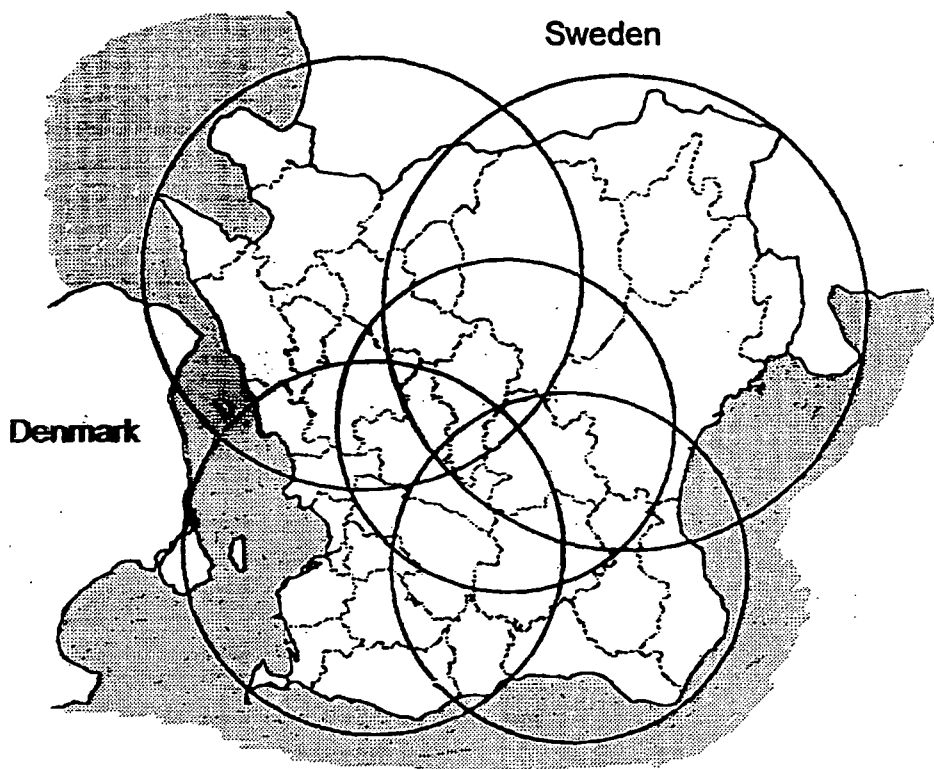


AGENDA 21 and comprehensive planning - interacting process

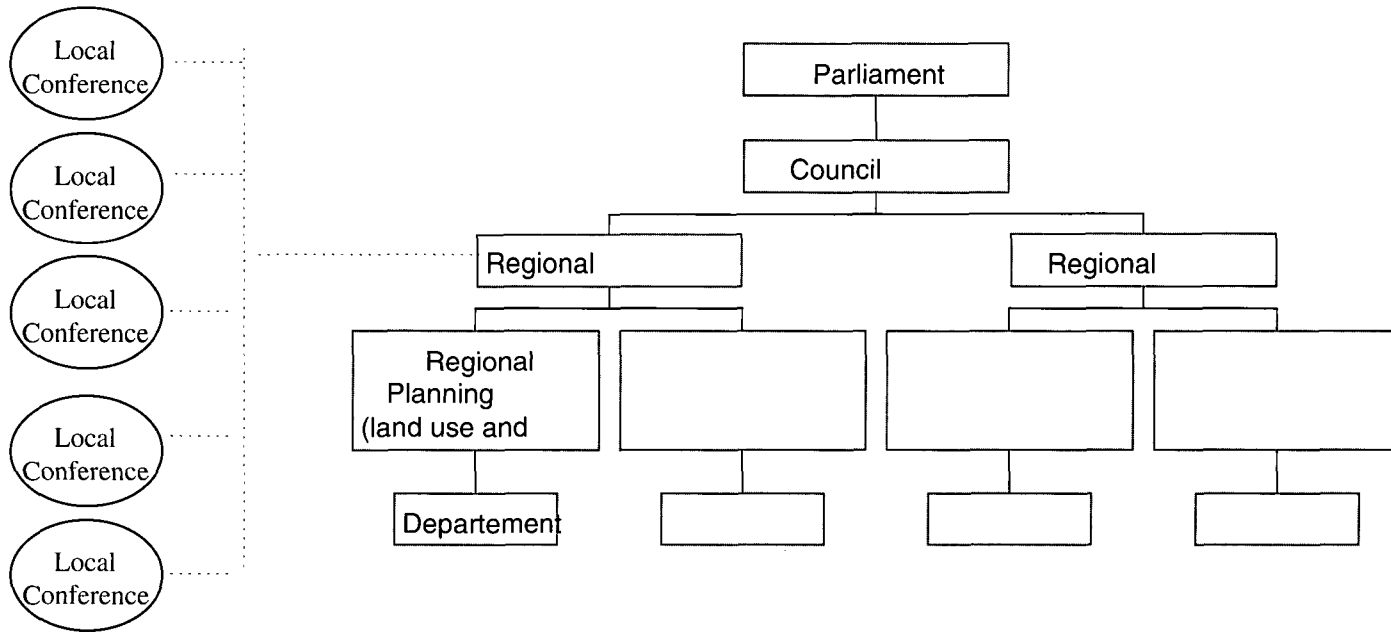
THE REGIONAL ARENA



THE DEMOCRATIC ASPECT
33 municipalities in Skane and 5 local conferences

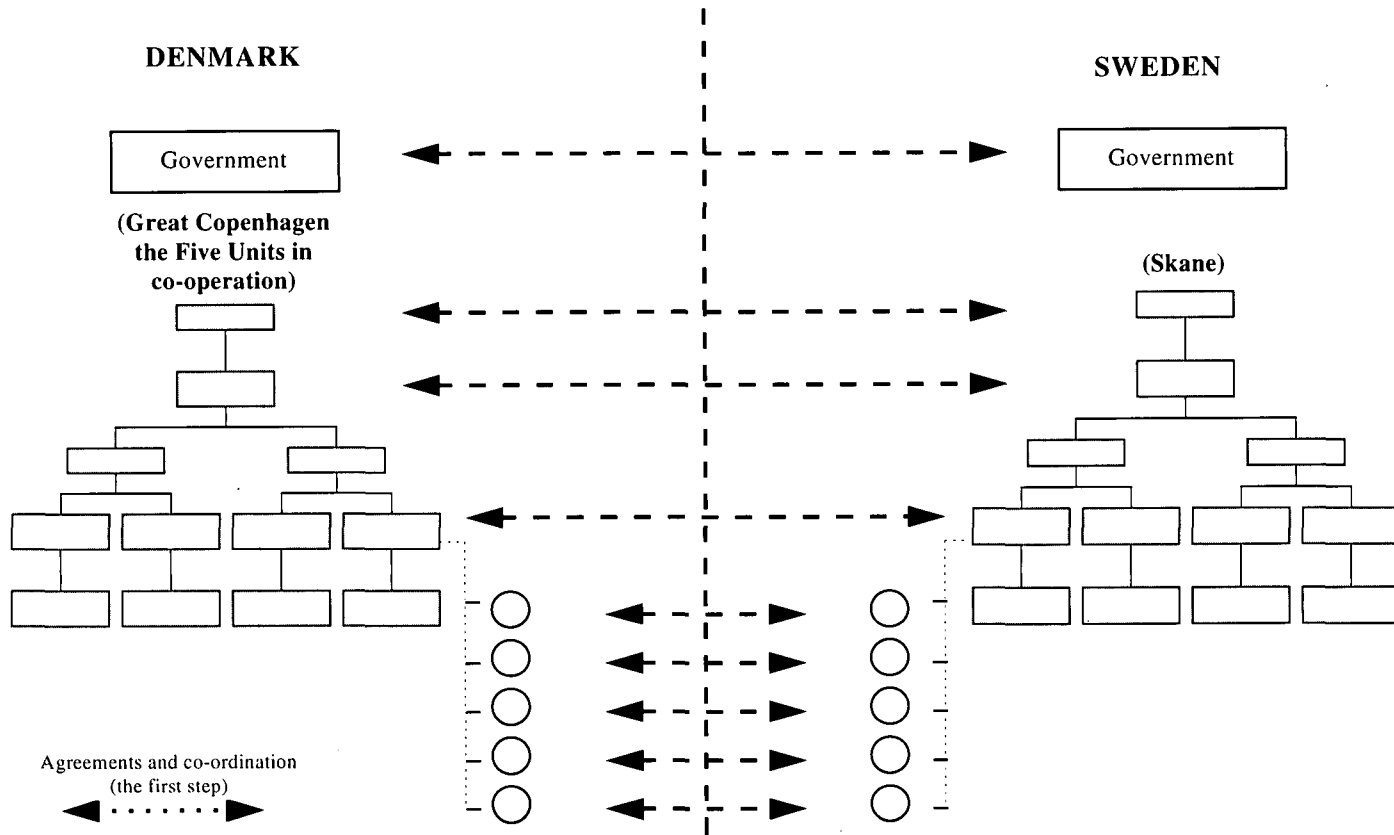


A new regional association/"parliament" in Skane Organization structure

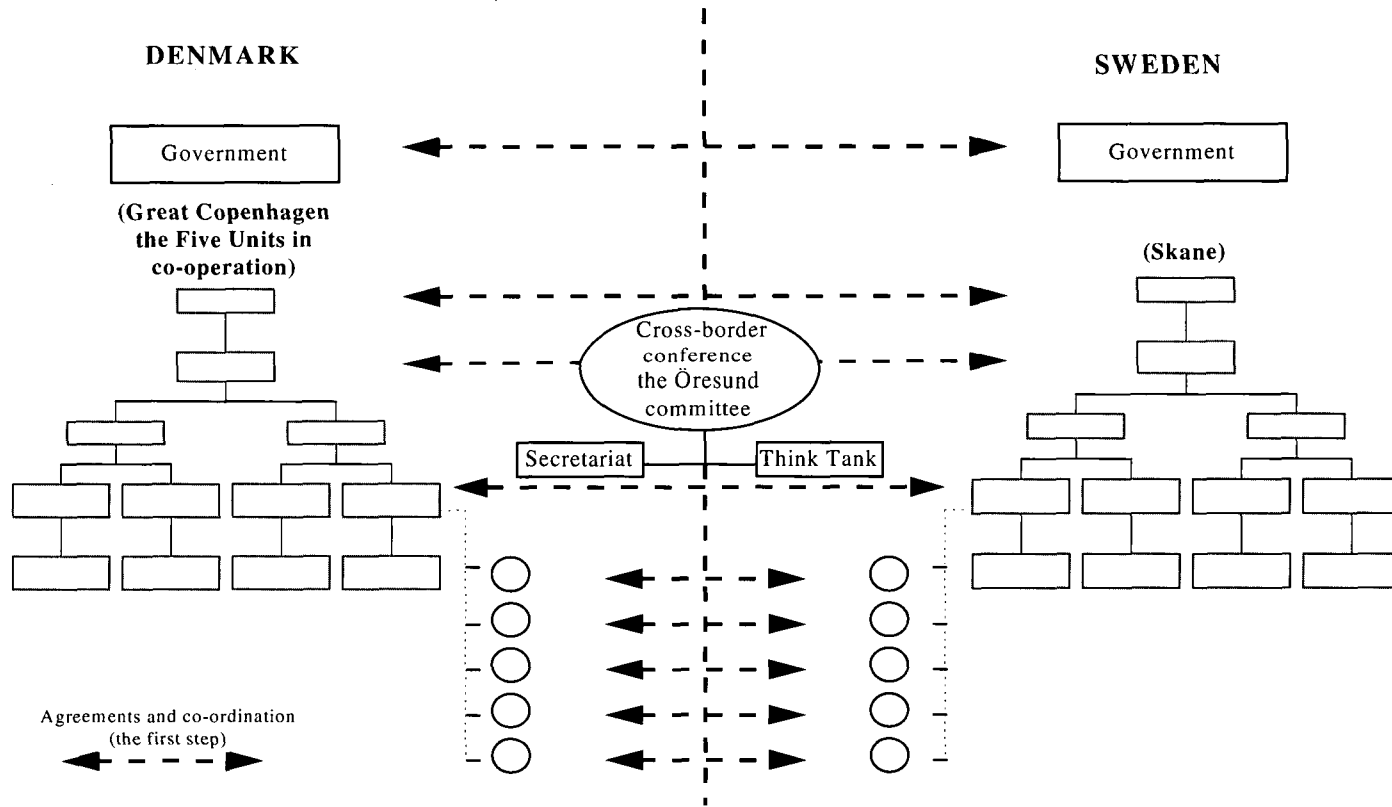


Vision - first step for the cross-border region

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Vision - second step for the cross-border region



THE DELTA PLAN IN BARCELONA: AN EXAMPLE OF CO-ORDINATION BETWEEN TRANSPORT AND TERRITORIAL PLANNING POLICIES

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Universitat Politècnica de Catalunya

1

The Llobregat river meets the sea to the South of Barcelona on the borderline between this city and the town of Prat de Llobregat. The territory made up of the last stretch of the river constitutes one of the large natural arteries in Barcelona. The left bank marks the end of the port installations; from the right bank there spreads an agricultural area up to the airport. To the North there is a confluence of the railway and a motorway junction.

This Delta, colonised because of its richness in agriculture and mild climate from way back in the annals of time, is today articulated by a series of small and medium sized towns that, on a whole, house a population of some 650.000 inhabitants. Its growth commenced with the massive immigration experienced over the years 1960-1970 and even today steadily develops an industrial and residential belt for Barcelona's overflow. Over the last few years, the increase in local income and the urbanisation of activity in general, is pushing this area towards having to face the challenge of historical problems as refers to communication infrastructures.

The high rate of population growth that is disproportionate in relation to means of production and financial capacity of the new inhabitants has created an imbalance with respect to the Catalan average for income levels, education and employment, all socio-economic structure information that steadily remit, for the most part thanks to the expectations of investment in infrastructures in the short term.

For this territory, the Barcelona Metropolitan Plan for Barcelona, approved in 1976, determines a well defined strategy that is at once ambitious, which can only be applied on the basis of a huge social and commercial commitment, that allows for the development of infrastructure projects that the Olympic Games of 1992 and the programmes currently under way, have practically fulfilled. However, the situation of permanent blockage by the Prat Local Authority, main repository of the large projects still pending, has impeded the amplification of Barcelona Port, the airport and particularly the bypass of the final stretch of the Llobregat river.

It is from 1994 when a broad institutional framework is configured that gives way to a macro-project known as the DELTA PLAN, which aim is to transform the delta area into a logistic platform on a European level based on the implantation of appropriate infrastructures. From this macro-project arose the skeleton of a commitment between several authorities in order to develop the infrastructures and

¹ The Launching Seminar of the Action COST 332 celebrated in Barcelona 24-25 October 1996 was sponsored by the Ministerio de Fomento, Ferrocarrils de la Generalitat de Catalunya, Departament de Política Territorial i Obres Públiques de la Generalitat de Catalunya, the E.T.S d'Enginyers de Camins, Canals i Ports and the Universitat Politècnica de Catalunya.

the environment, eventually signed in April 1994 by the Ministry of Public Works, Transport and the Environment (today the Ministry of Civil Engineering and the Ministry of the Environment); the Department of Territorial Planning and Public Works of the Generalitat de Catalunya; the Mayor of Prat de Llobregat; the President of the Township Association of the Metropolitan area and Mayor of Barcelona and the Country Council of Baix Llobregat.

This commitment, with contents valid for all institutions, was specified in formalising a series of projects based on the so called “action guidelines”. This totalled 19 new works as well as 14 other actions between plans and projects related to infrastructures that has been granted by the authorities mentioned and with a budget of over 400.000 million pesetas to be invested over the next fifteen years. This Plan is considered as an *Infrastructure Pilot Plan* by the European Union and it will enjoy financing by part of the cohesion funds.

The Delta Plan considers it essential to carry out:

- To bypass the final stretch of the Llobregat river to the South of what is currently the mouth, in order to facilitate the extension of Barcelona Port.
- To develop the land transport network (motorways and railways) to connect with the new port infrastructure, airport and main communication networks.
- The metropolitan water treatment plant that will regulate an important volume of Barcelona’s water together with that of other towns in the area.
- The incinerator for urban solid waste.
- The recuperation of the beaches.

1. The Llobregat Delta, strategic territory for the metropolitan area of Barcelona

Historically, large infrastructures for transport for Barcelona city has developed in the Delta, due to:

- a) Its geographic situation: a plain connecting two axes of activity on the coast and along the river, being a natural passage of great importance for connecting the coast to the hinterland.
- b) Its environmental characteristics with wetlands considered of great ecological value, some drained for agricultural activities that is very rich. The lack of urban development has allowed the terrain to be reserved.
- c) Its topographic features has made of the Delta a flat space that is unique because of its proximity to Barcelona which has allowed the installation of activities that need huge spaces, such as the port, the airport, industrial parks, and commercial areas.
- d) The layout of transport infrastructures from Barcelona due to its function of articulating Catalan and Spanish economies with the rest of the world, have converted the Delta into a strategic territory for placing logistic activities.

Therefore, the area provides the necessary characteristics for developing actions that will allow it to be converted into a “A top level logistics distribution centre, or platform in the South of Europe”, that in a figurative sense may be called the “the

door of Catalonia to Europe and the Mediterranean”. In order to reach such an objective is possible thanks to the first grade economic potential, specially represented by the port and airport installations which synergy is expressed in the contents of the commitment. At the same time, it is feasible because this ambitious PLAN for territorial equipping joins together different authorities in a common cause for modernisation and committed to finding appropriate methods and requirements for implantation.

2 Infrastructure projects

Of the series of projects planned, changing the course of the river 2.5 km to the South of its current mouth, will determine the execution of other basic civil engineering works:

2.1 Changing the course of the Llobregat river

The course of different bends in the Delta have been the object of several studies. The “Reorganisation Plan” drawn up by García Faria in 1879 incorporated a proposal for changing the river’s course before the urban perimeter of Prat del Llobregat.

The Regional Plan of 1953 and the General Metropolitan Plan of 1976 included a change of course 4 km towards the West. Finally the revision of the Plan in 1986 planned the course some 2.5 km from the river mouth. Channelling and changing the course offers two advantages:

- The possibility of extending the area for Port services by 198 Acres, which means a consolidation of the LAZ project (Logistic Activities Zone),
- Narrowing the river width in order to better control its waters to avoid flooding.

In order to carry out the modifications to the course, the following must be kept in mind:

- any measures necessary to correct the environmental impact that channelling the river may have on wet zones and “aquifers” will be carefully studied.
- measures will also be adopted to avoid the degradation of the beaches.

The mode of channelling and course change for the last stretch of the river has been agreed upon with the co-operation among authorities.

2.2 The extension of the Port

The extension of the Port together with an important restructuring with a view to organising activities and creating new spaces meant to complement other North Western Mediterranean ports, as well as those of the European Atlantic face. We must remember that the port infrastructures - as is also the case with airports - offer a service to the economy and to the need to travel in a specific hinterland, and for this reason they are known as economic support infrastructures. In the same way, these infrastructures induce economic activity in their territorial surroundings because there are certain economic activities that are particularly related to transport and logistics

that must be placed near to those infrastructures. There are other activities with a more indirect relationship but that also benefit from their proximity. Therefore, the extension of such infrastructures must plan for the land requirements of the two types of economic activity.

The extension plan for the port means to facilitate the passage of traffic representing at the present time 20 million tons in goods to practically double that figure in the year 2010, with a triple specialisation in chemical products, bulk goods and containers. For this type of traffic it is necessary to have a dynamic offer of services that is only possible with the LAZ (Logistic Activity Zone). At the current time, Barcelona port covers 436 acres. Extending the LAZ by changing the course of the river and winning land back from the sea, will generate a surface area of up to 1.048 acres in the year 2010. What is more, extending the port will include important actions on the road and railway networks.

Without doubt, Barcelona port, because of its strategic European position, could well become one of the main doors for access to the European continent with a return flow (counter current) of the traffic of the important North-South axis from the centre of Europe to the Mediterranean basin.

The huge actions that are planned are:

- The expansion of the Port will be carried out paying special attention to the treatment of the coast, including beach regeneration and “aquifer” protection in the Delta.
- A modification of rail access to the Port on the left bank once the river course change has been carried out.
- Use of port land for the installation of the river water treatment plant, and a solid waste incinerator.

We can see then that the port project plans the extension to include logistic services and, of course, to facilitate intermodal exchange, together with environmental actions that will assure the quality of evolution of the surroundings.

2.3 Barcelona airport

The airport in Barcelona is the 17th in ranking in Europe, with an annual growth rate of 8% since 1985. In 1992 an important renovation of the airport was carried out, but the perspectives and objectives for growth make it necessary to think about fresh extensions that will enable facing the new challenges ahead. Without this dimension, Barcelona would not be able to carry out its function as international axis. The perspective of hosting over 30 million passengers and half a million tons of goods towards 2010 means that the services must be available together with the appropriate capabilities and dimensions.

The increase in traffic will imply an increase in industrial functions, particularly those related to the maintenance of aeroplanes and other activities.

The extension project plans a configuration of parallel runways that will allow several simultaneous landings and takings off. But this solution is a space consumer that, on

principal will affect the wet zones of the Delta that are very much defended by the ecologist movements with whom agreements must be made. What is more, this action must be compatible with the use of the coast for leisure purposes. Therefore, the extension must be made towards the interior. Under this perspective, the importance of the dual port-airport, is of exceptional value for centring activities.

The airport will need the following installations:

- A third runway which construction has been under debate for many years and that must find compatible criteria related to aeronautical efficiency and respect to the natural reserves of the surroundings.
- Increase of reception points for planes and improvement of the relation with the runways. A solution is planned, type satellite between runways that will minimise the running space of the planes on land.
- New terminal placed between the railway lines and the current terminal B.
- Interior connections to improve voyage time and passenger comfort.
- Modular zone for installing handling services, workshops, storage places, hangars and a heliport.
- Technology and services park.
- Airport city for complementary services and activities. It is planned to prepare a central area of some 100 acres for passengers, with offices for the airline companies, hotels, shopping, other company offices, etc.; as well as an area for technical service to the aeroplanes themselves.

The airport station, with its rails underneath the future terminal building is a key piece in the strategy for airport traffic growth. Without a direct connection from the airport to all the other networks, particularly the High Speed Line with the frontier and Madrid, it would be very difficult to absorb the traffic of a 300-400 km. hinterland.

2.4. Railway network

The proposals for the railways included in the Delta Plan are in summary:

- Development of the European gauge railway on the left bank of the changed river course, will access to the port area and destined mainly to goods traffic.
- Construction of a light coast train, connecting several burrows of the city area with the airport.
- Strengthen the commuter network of national trains improving the current situation by laying a third line in order to make long distance and commuter trains compatible.

In fine, the planned projects are organised around a new access to the port for goods traffic, improving the management of existing railway infrastructures as well as goods treatment and transport in the city area of Barcelona and to improve traffic among burrows on the periphery. On the other hand, the international gauge accesses to the port and airport are fundamentally for integration into Europe of the Catalan region and the rest of Spain.

2.5. Road network

The roadway access to the Prat, the port and the airport is defined in the General City Plan for Barcelona in 1976, that is still valid today. In this Plan, access to the port is basically by means of the left bank of the river, although later on the Government Office for Roadways of the Ministry of Public Works, carried out a line study where penetration into the port was done with a double motorway on both sides of the river.

In the same way, the motorway on the right bank of the Llobregat (under construction) and its connection with the ring roads (urban motorways in Barcelona) will facilitate access to the airport. This new axis, parting from a new bridge over the last stretch of the river will connect the port and airport and will allow for a certain re-organisation of the territory: cargo area, airport area and industrial area.

3. Institutional co-ordination

Action taken on such a strategic territory must take into account the overlapping of authorities with responsibilities on different levels. This has caused numerous institutional conflicts during the last twenty years or so, particularly related to changing the course of the river. Central to the argument is the future of the infrastructures that are the responsibility of central government: port and airport; means of access by road and rail to the airport and port. These difficulties find their origin in the rejection of co-ordination methods. Planning up to now has been very sectorised and has not allowed for the necessary co-ordination. These infrastructures have an obvious impact on the territory and on urbanisation, which forces an effort for integration into territorial planning.

The fusion of several Ministries under the socialist government (Ministry of Public Works and the Ministry of Transport), at that time made it easier to co-ordinate territorial planning, transport and the environment. Therefore, in 1992 Government Office for Intermodal Transport Planning in the Large Cities, did a study titled: *Co-ordination of port and airport activities and infrastructures for access* that ended in 1992 in a strategic proposal that laid the basis for the co-ordination and synthesis of six thematic studies. The Ministry sent this document to the Generalitat de Catalunya, Prat local authority and Barcelona local authority. One year of arguments ended up with an agreement to make commitments formal between the authorities.

With the change of government, in May 1996 the Ministry of Civil Engineering and the Ministry of the Environment was created that substituted MOPTMA (Ministry of Public Works, Transport and the Environment). At this time, the Delta Plan had slowed down, but now receives a new impulse thanks to the huge social agreement subscribed by the Co-ordination Agreement. It is obvious that this macro-project will have positive effects, both for local economy and for regional and national development, because it will allow the generation of potential growth that will promote new commercial initiative. The expectation of creating 8,000 jobs that, added to the demand directly generated by the logistic platform, may reach the figure of 20,000 new jobs that situates the Delta Plan as the most important project for Catalunya in this end of century.

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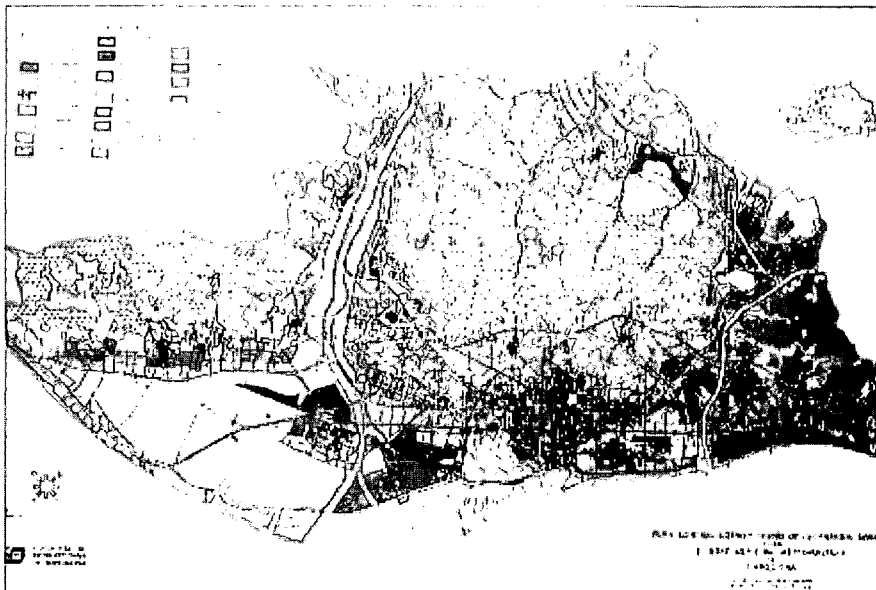
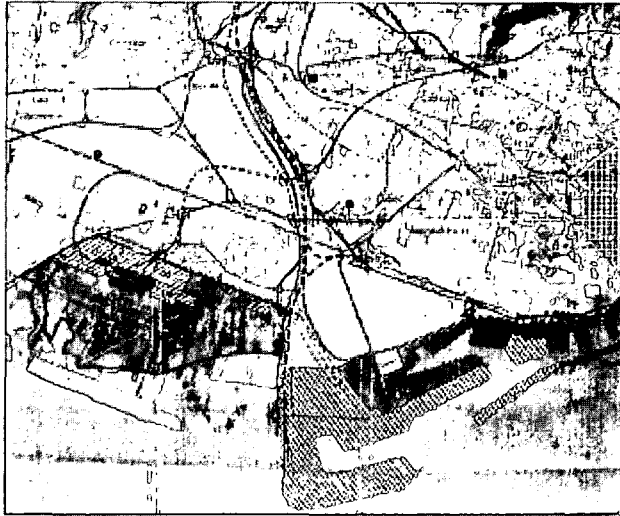
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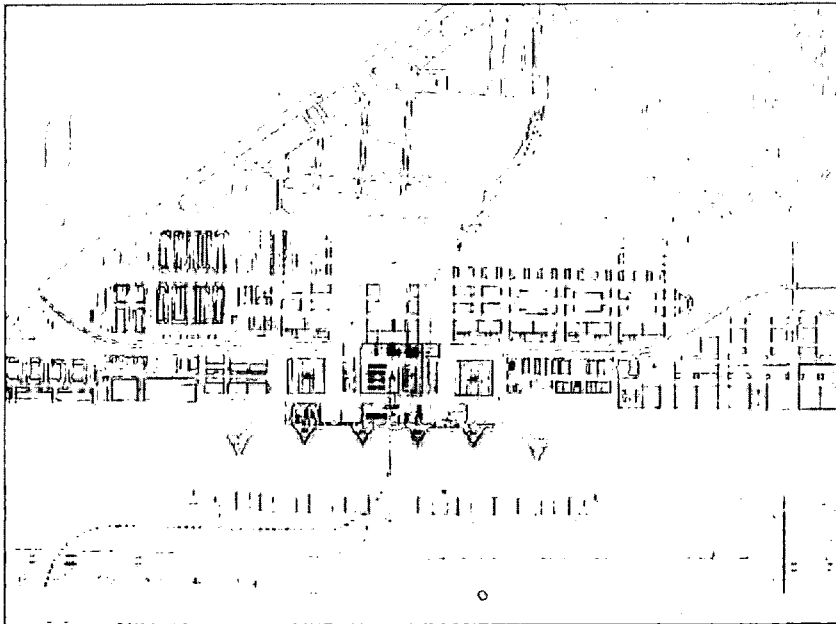
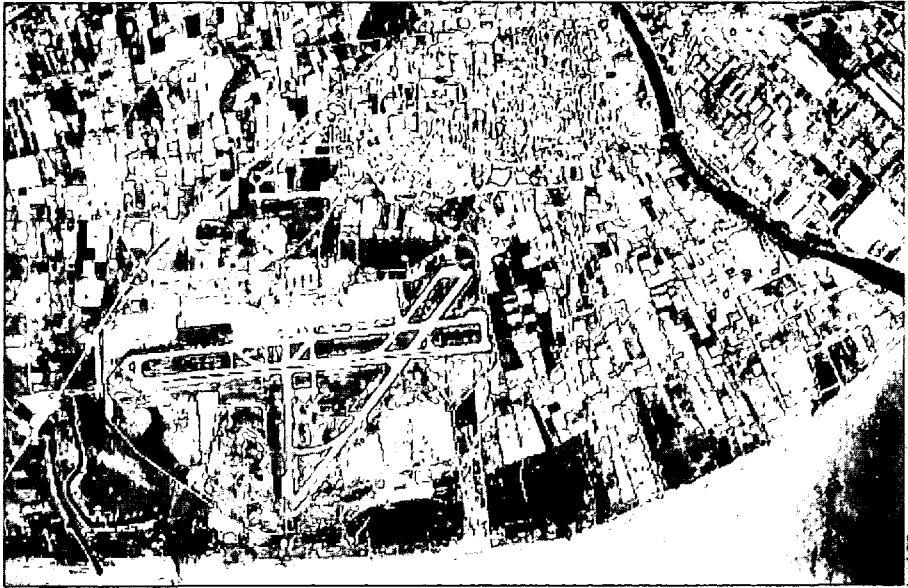
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**Directrices para el Planeamiento de Infraestructuras en el DELTA del LLOBREGAT
Propuesta MOPT**





THE DELTA PLAN FOR THE BAIX LLOBREGAT IN BARCELONA (SPAIN)

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The Baix Llobregat is a territory that covers the final part of the river Llobregat, one of the two large geographic doorways belonging to Barcelona.

A few thousand years ago it was colonised because of its rich agriculture and mild climate. Nowadays is spotted with a series of small to medium sized cities that on the whole house a population of some 650 thousand inhabitants.

This area experienced sustained growth during the decade of the 1960's and it is characterised for being an industrial park and residential area for the big capital city right up to the first half of the eighties, from when the increase in local rents and the metropolisation of the majority of activities, reaching out to cover a much larger territory, has brought it to the point of having to face the challenge posed by the historical bottle necks related with communications infrastructure.

Back in 1953, when the General Plan for Barcelona and environs was approved -the port and the airport- together with determinations for the territorial systems on a large scale, the great space of Collserola, or increasing the value of the huge delta as a protective element for agricultural customs, were all made the object of territorial strategy with a notable value for anticipation for a territory that would be converted at a quick pace into a point of immigration and industrialisation.

From 1960-1980 growth has been experienced at 20.000 people a year on average, with for city production methods of the period was completely disproportionate, especially taking into account the economic capacity of the new inhabitants.

These dynamics of growth still maintain even today a certain imbalance with respect to the average in Catalonia referring to rent, education and unemployment figures, data for the socio-economic structure that are diminishing little by little.

The metropolitan General Plan, renewed in 1976, determines for the whole of Barcelona and the adjacent municipal nucleo, a well defined, ambitious strategy which, in the way of a huge social and commercial commitment has persisted until today, allowing for the optimum development of infrastructure programmes that the Olympic Games and current programmes have practically topped.

In 1994 the situation of the permanent blockage caused by the argument held between the Town Hall of Prat, main receiver of the large packages pending for the enlargement of the Port, the Airport, the treatment of the last part of the river Llobregat and the residual water treatment plant, made it necessary to configure a large institutional framework for the both technical and political agreement. From the

point, in the month of April, the shape of an agreement arose for the development of infrastructures and the environment, in the area of the Llobregat Delta, subscribed by the Ministry of Public Works, Transport and the Environment, the Department of Territorial Policy and Public Works Transports and Environment, the Department of Territorial Policy and Public Works of the Generalitat, the mayor of El Prat del Llobregat, the mayor of Barcelona and the Baix Llobregat Area Council.

This agreement which content is still valid for all the institutions involved in spite of a certain period of silence because of the political change in the Spanish government, was specified in the normalisation of a series of projects based on the so called "action guidelines".

The general framework for urban planning the valid remained unaltered even though the particular circumstances of the development of the project would be subject to adjustments, tailoring to methods and implementation needs in accordance with modern times.

The territorial reference is both the object and the resources. Therefore the projects are not only taken on by the different administrations with responsibility and competence, but each one of these actions are inscribed in a cause and effect relationship, elemental because of the enormous degree of interaction between them all.

Of the projects listed by the agreement documental, those that are either ongoing or have been finished are:

- Construction of railway accesses to container dock no. 1. An investment of 430 million pesetas.
- Construction of the access to the airport from the Barcelona North Ring Road. Budget of 7,000 million pesetas. Estimated finishing time in March 1998.
- Construction of the Baix Llobregat motorway, from Abrera to Sant Feliu de Llobregat. Budget of 25,500 million pesetas. Estimated finishing time in December 1997.
- Improvement of the accesses to El Prat from the A-16 motorway and the main road C-246. Budget of 3,200 million pesetas...

In the project phase, still pending commencement of work for 1997, the following are contemplated at this time

- Waste water treatment plant for el Prat on a surface of 30 acres and a collector network from Cornellà, Hospitalet, el Prat del Llobregat and Barcelona. The budget for the project is of 39.000 millions pesetas. Date set for the commencement of expropriation and the work is 1997. Probable date of finish is for the year 2000.
- Regeneration of the maritime facade of El Prat to the south of the future mouth of the river. Budget of 600 million pesetas. Date of commencement of the work, 1997 finishing in 1998.

- Project and construction of the prolongation of the Baix Llobregat motorway to the port and Zona Franca. Budget under study of 12,000 million pesetas. Commencement date for projects 1997. Commencement of the work in 1999. Finishing date 2000.
- Hydraulic action of the Llobregat river in its last part from the urban nucleus of El Prat, that includes the channelling, protection and regeneration of spaces considered of interest for its nature. Budget of the project 8,000 million pesetas. Commencement date of work in 1997, finishing date 1999.
- Project for drainage of fluvial waters along the left bank of the Llobregat river. Estimated budget of 4,500 million pesetas. Commencement date in 1997, finishing date 1999.
- Acquisition, recuperation, development and management of the nature reserves in relation to the Llobregat river action and the sea front. Annual programme of investments to be determined. Commencement date in 1997, finishing date 2005.
- Development of the airport to provide it with a horizon capacity of 100 operations at rush hour. Budget of 45,000 million pesetas. Without a schedule but subject to institutional "reconciliation" with respect to coastal planning and the natural reserves, as well as the forecast of airborne requirements.
- Development of the airport zone for cargo, aviation auxiliary, logistic and management centres services of El Prat.
- Global action on the building land floor of El Prat, destined for management use and for the airport area cover 300 acres with investment mortgages, only of urbanisation work and services of over 5,000 million pesetas. Commencement 1997, finishing date 2005.
- Ampliation of Barcelona Port and development of the area destined to logistical activities, 2nd phase.
- Development of sea and shore areas of the port over 400 acres of territory within the influence of the Barcelona Port Authority, with the construction of the new western refuge dock, road and rail accesses for combined transport operations. The budget has not been assessed because of the indeterminate schedule for the work.
- Rail access to the port and airport with international line width within the new high speed rail structure to be built. This includes the renewal of rail accessed to the airport and the construction of a classification station for goods for the port and airport. This is a programme to be started in Catalonia in 1997 with the construction of the public company GIF, for the management, construction and exploitation of the rail system Madrid-Barcelona-French border, and work is expected to finish in 2004.

THE AGGLOMERATION OF TOULOUSE HIGHWAYS DOSSIER

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1. What are the links between urban planning and communications infrastructures ?

Various planning tools have been implemented over the past twenty years in France: Master Plans, Municipal Plans, Mobility Plans, etc. These initiatives, begun at the instigation of Central Government, or, since the decentralisation laws of 1982, of the local authorities, are part of an avowed wish for partnership between all the players and professions involved in regional planning.

Instituted by a circular dated 15th November 1991, the procedure known as the Agglomeration Highways Dossier (D.V.A.) marks Central Government's wish to promote, over the long-term, concerted action between all the partners concerned by major public planning or infrastructure projects. The procedure is evidently linked to, and part of, the overall set of planning tools, including the Master Plans and their predecessors, the Agglomeration Dossiers. These favour the emergence of a relevant highways scenario which is coherent with urban development choices and on an appropriate scale, from the human scale to the regional. A D.V.A which is operated jointly with an Agglomeration Plan is, therefore, a real planning initiative and contributes a new dynamic to the idea of planning, favouring dialogue and co-operation between the different partners in the face of their respective objectives.

The objectives of the Agglomeration Highways Dossier are as follows:

- to define the long-term (25-30 years) composition of the national agglomeration road network within the wider framework of overall thinking on urban highway networks and urban transport, whoever the prime contractor may be.
- to define as accurately as possible the route of each of the roads to be built, so that the necessary space may be reserved in the land-use plans.

The case of Toulouse provides a particularly interesting area of study. Since the drawing-up (1975) and approval (1982) of the S.D.A.U, (Master Development and Town Planning Scheme) the agglomeration has grown considerably. At the beginning of the 1990s, Toulouse no longer had a clear standpoint from which to organise its development. The infrastructures planned in the S.D.A.U. had been largely completed by the end of the 10th Plan.

On 3rd May 1991, the Joint Planning Association for the Agglomeration of Toulouse (S.M.E.A.T) recommended that a new Master Plan be studied. The Highways Dossier for the Agglomeration of Toulouse (D.V.A.T.) has therefore arrived at an opportune moment in the current planning discussions and constitutes a positive contribution by Central Government to the drawing up of an Agglomeration Plan by all the partners.

How have these two initiatives been jointly carried out in the Agglomeration of Toulouse?

An assessment of the link between the Agglomeration Highways Dossier and the Master Plan may be based not only on the interplay between the various players and the completed discussions between Town Planning and Transport, but also on the aims of the projects contained in the two dossiers.

However, once the Plan (urban development plan and road network plan) has been elaborated, new co-operative links must be built to ensure its realisation. Do these two procedures carried out jointly in the agglomeration offer guarantees for the implementation of the Plan or should we consider that such guarantees must now be looked for elsewhere, and in particular in the ability of the players to organise themselves to follow, lead and prolong the exercise of coherence already under way.

2. The Agglomeration of Toulouse Today

The sixth largest agglomeration in France, Toulouse has undergone an unprecedented economic development and its rate of demographic growth - one of the highest in France - can be explained above all by the strong attraction it exerts at national level.

Despite a "critical mass" which is perhaps as yet insufficient, the agglomeration of Toulouse has acquired an international reputation for its achievements in aeronautics and space technology and possesses a first-class university and research resources - assets which will allow it to take its place tomorrow among the regional metropolises of European dimension.

In fifteen years, the housing basin has extended outwards considerably: 30% of demographic growth is localised in the municipalities situated outside the area covered by the S.D.A.U. In 1990, the agglomeration of Toulouse contained a total of 650,000 inhabitants, but its housing basin extended well beyond its 58 agglomerated urban municipalities and the Z.P.I.U (Industrial and Urban Zone)* today includes more than 740,000 inhabitants. With 358,000 inhabitants in 1990, the Toulouse town council still represents more than half the

* The Z.P.I.U. are defined in accordance with the following criteria: urbanisation, proportion of the population making a living from agriculture, the daily level of homework commuters, and the rate of demographic growth.

agglomeration's population, but this situation may be reversed in the near future to the extent that the population living on the outskirts is now growing even more rapidly than that in the town-centre.

Nearly a third of the population of the Midi-Pyrénées region today lives in the agglomeration which acts as a magnet for the French regions as a whole (two-thirds of new arrivals come from other regions in France).

Employment is, for the most part, concentrated in the agglomeration's central zone (Toulouse and its inner suburbs). Three quarters of all jobs are in the municipality of Toulouse, but the agglomeration's attractiveness in terms of employment extends over the major part of the Department of the Haute-Garonne and spills over into the neighbouring departments.

Over the last fifteen years, the urbanised zone has more than doubled in surface area and Toulouse now figures among the least dense of the French agglomerations.

In the outer suburbs, the gradual "nibbling away" of the countryside is little by little compromising the coherence of the big agricultural and countryside units.

The forming of vast periurban zones around the regional metropolis is handicapping the development of certain medium-sized neighbouring towns which tomorrow, could accommodate, in favourable conditions, a great many developments. For some, the absence of fast links with the agglomeration also curbs their growth.

Urban development favours the private car and the rate of motorisation is particularly high (1.21 vehicles per household in 1990 against 0.99 in 1975). The share of trips by private car has increased considerably. They represented 64% of motorised trips in 1990, against 48% in 1975. This is the immediate result of a form of town planning which is incompatible with other modes of transport. However, since June 1973, trips by public transport have been rising with the arrival of the first metro line (and the restructuring of the associated bus network).

Three-quarters of home-work trips are now made by car, from the suburbs towards the core of the agglomeration, since the majority of jobs are still situated around the central zone. This situation engenders increasingly heavy pendular traffic flows on the main roads, particularly during peak periods.

Development 1978-1990

(source: Household Survey - Mechanised Trips)

		1978	1990
Centre of Toulouse (*) - Periphery	+ 31%	63,000	83,000
Toulouse (outside centre) -Periphery	+ 51%	198,000	299,000
Periphery - Periphery	+102%	216,000	436,000

(*) Districts between the Garonne and the Canal du Midi up to the allées Jules Guesde.

Problems of traffic fluidity constitute the major difficulty for urban trips as a whole: within the city centre, from the suburbs towards the centre and vice versa, and finally, on the agglomeration's only by-pass. Through traffic and access to the agglomeration's roads are adversely affected by internal traffic jams.

2.1 Characteristics of the National Road Network

The Midi-Pyrénées region and the agglomeration of Toulouse will, in the long-term, be linked to the rest of the Country and to other European countries, in particular Spain, by a star-shaped motorway network. This network is vital for the agglomeration and the Region as a whole and its function, of serving long-distance travel, must remain a priority. This network, together with supplementary roads particularly in the direction of Auch and Castres, provides links with the medium-sized regional towns.

Traffic jams on the radial access routes to the agglomeration's economic centres caused by periurban traffic place a curb on its dynamism. Furthermore, the jammed network is ill-adapted to the introduction of a major public transport corridor.

2.2 The Public Transport Network

A first light metro line running from North to South was brought into service in 1993, a second, line B, running from the North-West to the South-East is planned in the medium-term.

The bus network is at present being restructured to complete this service by means of feeder-services which will increase the metro's catchment area.

3. The D.V.A.T: a concerted global process for the definition of the agglomeration's structural networks

"The D.V.A. is a reiterative process, which highlights the interrelationships between the components of the region, interplay between the players, and lifestyles" (extract from a methodological memo on the D.V.A. (C.E.R.T.U / Ministry of Transport).

To institute the process, an evaluation of the last fifteen years of urbanisation in the agglomeration allowed a common agglomeration culture to emerge, firstly between technicians, and then between representatives of the various local authorities and Central Government. This knowledge of the area, resulting from different economic, environmental and sociological approaches, provided the necessary elements for a shared diagnosis.

3.1 The Partners

The D.V.A.T. is led by Central Government, represented by the Prefet and the Departmental Division of the Ministry of Transport which since 1991 has constituted a technical group composed of:

- the Haute-Garonne Departmental Division of the Ministry of Transport,
- the Town Planning Agency for the Agglomeration of Toulouse,
- the Ministry of Transport South-West Centre for Technical Studies,
- the Engineering Department of the Departmental Council,
- the Midi-Pyrénées Regional Division of the Ministry of Transport,
- the Mixed Public Transport co-ordinating body (organising authority for public transport : S.M.T.C.)
- the Toulouse Town Council.

The work of this Committee is then passed on to the S.M.E.A.T who works through thematic Commissions, and deal, in particular, with transport infrastructures.

The Steering Committee was created as recently as 9th December 1994 by the Prefet. It includes:

- 4 representatives from Central Government
- 4 representatives from the Departmental Council,
- 4 representatives from the S.M.E.A.T,
- 1 representative from the Regional Council,
- 1 representative from the Mixed Public Transport co-ordinating body.

The D.V.A.T's area of study covers 208 municipalities. It corresponds to the 1982 Z.P.I.U. so as to include those municipalities through which the existing communications corridors between the national roads leading to the agglomeration pass.

The S.M.E.A.T., which groups together 63 municipalities, was set up in 1991 as a think tank at agglomeration level. In 1993 it acquired the authority to implement the Master Plan. After three years of reflection and concertation, in March 1995, the S.M.E.A.T defined its Agglomeration Plan, entitled *Toulouse Métropole, un cap pour le long terme* (Metropolis of Toulouse, a long-term course). A real exercise in large-scale planning, it displayed qualitative ambitions for the Toulouse metropolis within a European and regional context. In July 1995, and on the basis of the Agglomeration Plan, the S.M.E.A.T. decided to aim its Draft Master Plan at 2015. Central Government departments are permanently associated with its work. They intervene to ensure that national interests and General Interest Projects are taken into account i.e., the road network, notably through the D.V.A.T., the high-speed rail network, the airport platform, the protection of the environment, the conservation of agricultural areas, the development of the nation's natural and urban heritage, maintenance of an equilibrium, and major amenities.

The Region, the Department, and the Mixed Public Transport co-ordinating body are also associated with the work of the S.M.E.A.T.

3.2 Ideas

The first stage in the discussion process on the agglomeration has consisted in constructing contrasting scenarios of urban development, coupled with road and public transport schemes. These were intended as tools to transcribe the objectives expressed by the various partners and to measure the effects of these objectives. They formed the basis of a debate which has produced a shared scenario.

Different Development Hypotheses: the four basic scenarios and their main characteristics:

- H1: "Core of the Agglomeration" Scenario
 - . Increase demographic capacity at the heart of the agglomeration: Toulouse and inner suburbs,
 - . favours the implantation of businesses in the inner suburbs in order to create a better balance in the localisation of employment within the agglomeration.
- H2: "Outer Suburbs" Scenario
 - . Strengthen the demographic and economic development of the outer suburbs - within the S.D.A.U. area - by favouring the emergence of diversified urban poles.
- H3: "Linear Development" Scenario
 - . linear urban development on the North - South-East Bordeaux-Narbonne corridor with distant development poles placed along the corridor.
- H4: "Core of the agglomeration associated with distant poles" Scenario
 - . Favour the emergence, outside the S.D.A.U., of diversified urban poles.

The comparison between scenarios was made on the basis of:

- the "go with the tide" reference scenario, which means continuing the most recently observed trends,
- the degree to which the urban options were appropriate to the transport network, and notably the highway scheme,
- the trip demand,
- and assessment of building costs,
- the evolution of the modal split
- the accessibility of the town centre to all modes of trip,
- the level of service provided by the transport infrastructures

From this was born the scenario "Core of the Agglomeration and Star shaped Development" based on an attractive public transport network (metro, bus, train) completed by the highway network (inter-sectorial link to relieve the bypass, extension of the radial routes, funding for future development, whilst integrating the land needed for public transport.

This travel policy at the service of the urban development project is based on two main principles:

- to bring ideas on transport in line with ideas on the urban development of the agglomeration. The reduction in the number of trips made necessarily involves bringing the major urban functions of housing, employment, and services, closer together. This is expressed in the Agglomeration Plan by a tightening up of urban development near the core of the agglomeration, more often accompanied by a general policy of improving the bus, metro and train network. Certain existing urban development corridors could accommodate exclusive right-of-way public transport, thus irrigating the peripheral sectors, but also structuring their urban development.
- to strengthen and develop the complementary nature of modes of transport in order to rationalise trips. With an overall view as a starting-point, it has been suggested that the specific advantages of each of these modes should be exploited to the full, whilst taking into account the different urban contexts:
 - in the core of the agglomeration and in several development corridors, public transport would be privileged. Around the entry-points to the agglomeration, park-and-ride car-parks would accommodate cars coming from the periphery.
 - beyond the by-passes, new routes would be established for exclusive right-of-way public transport.

3.3 The Projects

- The intermodal public transport network: the metro, a star-shaped system serving the core of the agglomeration, line A, line B, and in the very long-term, a line C in conjunction with a real agglomeration network of metro, bus and train.
- The redeployment of other non-mechanised modes for short distances (foot, bicycle).
- A network of primary routes adapted to the various distances travelled:
 - . national and regional links
 - . sectorial links
- A secondary network, the framework of "the town", made up of avenues, paths and boulevards. It would accommodate all trips.

4. Conditions for the Implementation of the Projects contained in the D.V.A.T. and in the Master Plan

The D.V.A.T./Master Plan link has enabled cross-referenced Town Planning/Transport discussions to be conducted, and a development project to be defined with the participation of all the partners.

However, have the conditions for implementing this Project been met? It would seem that discussions should continue, in particular on the participation of certain partners who do not seem fully involved, on the capacity to fund future works, and on the co-ordination of initiatives to ensure balanced, coherent development.

4.1 Partners still not yet fully involved

In 1995, the D.V.A.T. Steering Committee, which was set up belatedly, decided to initiate concertation with 208 municipalities. It is clear that those municipalities outside the Master Plan discovered a concertation dossier whose overall Planning/Transport coherence had been thought out and defined by a smaller group of partners including Central Government and the S.M.E.A.T. (63 municipalities).

The Department has expressed its solidarity with the municipalities who found they had been consulted too late although they were concerned by plans to bypass the agglomeration and were strongly opposed to the suggested routes. The D.V.A.T. is consequently now in a difficult situation regarding the areas outside the Master Plan.

Within the perimeter of the Master Plan, the S.M.E.A.T., which has conducted revision studies of the Master Plan, at the same time as those of the D.V.A.T., has given priority to an urban scenario and an overall organisation of trips which is favourable to public transport. The D.V.A.T., however, expresses the orientations followed in the Master Plan, which aims to strengthen complementary nature between the modes of transport, in order to use the specific qualities of each to the full, whilst taking the urban context into account.

However, the S.M.E.A.T expresses reservations about the suggested routes for the roads and would like the studies to continue so that the concertation already initiated may result in the definition of the project managership plan indispensable to the implementation of the Master Plan, and its urban and transport infrastructure projects.

4.2 Major Financial Investments

The assessment of the funding needed to finish the Master Plan projects by 2015 is as follows:

- 6 billion francs for highway infrastructures,
- 8 to 9 billion francs for public transport,
- 5 to 8 billion francs for the other major metropolitan amenities.

An investment in the order of 23 billion francs will be necessary, that is to say more than two-thirds, for transport infrastructures (road network and public transport network).

Nearly two-thirds will be payable by the regional authorities, municipalities, Intermunicipal Co-operation Establishments, the Department, the Region.

The intermunicipal or supra-municipal scale of these projects implies the emergence of new agglomeration relationships in terms of new agglomeration structures, or the strengthening of existing co-operation.

Under present conditions, and if investment behaviour remains unchanged, the funding and mounting of the various projects of metropolitan interest could prove problematic, which is why it is now necessary:

- to unite, by activating all the partners,
- to arbitrate, by defining the major priorities,
- to create contractual relationships, by establishing a partnership with Central Government and the regional authorities.

The Master Plan sketches out the ground rules for organising the balanced development of the agglomeration. It identifies:

- Priority medium-term infrastructure projects
- Planning/Transport coherence zones

These are areas where urban development depends heavily on the planning and building of transport infrastructures to serve them (primary road system, metro network, etc.) and structure them (urban boulevard with priority siting for public transport).

These rules serve to inform the various partners of the indispensable coherence between urbanisation and the building of transport networks which must be respected when following the Master Plan.

4.3 An Agglomeration which is complicated to operate and for which it is difficult to achieve coherency as regards projects

The regional metropolis can be distinguished in several respects from French and European agglomerations of a comparable size:

- the way the town is divided up has its origins in history and in contrasting local situations which give the town centre a strong position in the agglomeration (12,000 hectares, 358,000 inhabitants and 225,000 jobs in 1990).
- a metropolitan area which up until the 1960s, only included the town centre, before tripling its urban area in the space of thirty years (with the expansion of the towns in the inner suburbs). The need for an intermunicipal approach to metropolitan matters is thus comparatively recent in Toulouse's urban history.

A multitude of structures and the superposition of territorial authorities have made the agglomeration of Toulouse into a highly complex entity which is not easily legible.

Indeed, in parallel to the big institutional levels (municipalities, Department, Region, Central Government), there are more than 80 municipal co-ordinating bodies of varying size and purpose, to which should be added several multi-purpose municipal co-operation structures either already in existence, or emerging. The most important of these are:

- the Greater Toulouse District (15 municipalities, more than 500,000 inhabitants), set up in December 1992,
- the S.I.C.O.V.A.L. Community of towns (33 municipalities in the South-East of France, 35,000 inhabitants) set up in December 1992 on the foundations of a multi-purpose association of municipalities created in 1975.

There are more than a dozen intermunicipal structures involving a hundred municipalities, half of which are within the perimeter of the Master Plan and whose territories and authorities are superposed. These structures could take on a stronger institutional form: several communities of municipalities or towns are at present in the process of being formed.

Against a background of severe budgetary constraints where the funding of projects is largely borne by local authority budgets, the agglomeration's organisational capacity becomes an important key in the realisation of stated ambitions.

5. Conclusion

Although a certain consensus on unified development has been achieved in the agglomeration through the planning exercises, the Master Plan, and the D.V.A.T., the partnership, and consequently the institutions, need to be developed in order to extend and ensure coherence between regional development and transport projects.

The D.V.A.T., by defining a methodology for the elaboration of a dossier, and the Town Planning Code by establishing the rules of the game between the authorities, Central Government, other associated public persons and the inhabitants, guarantees the richness of the initiatives undertaken (exercise in overall coherence, appropriation of strong messages by the various players). However, the scope of the Project remains to be defined.

The D.V.A.T. is at present being discussed and should result in a project managership plan sanctioned by ministerial decision and by the deliberations of the authorities consulted. Each authority is then responsible for programming and carrying out the projects for which it is responsible.

The Agglomeration Project "Toulouse métropole, un cap pour le long terme" has displayed a development strategy created from a communal vision of the future. The Master Plan gives it all its legal weight because it necessarily forms the basis for any planning documents established afterwards by the municipalities.

However, permanent co-ordination between the various players within the framework of a successful and on-going exercise, remains to be elaborated. Neither the D.V.A.T., nor the Master Plan are sufficient, but they do, however, put forward the real questions of balanced development in the agglomeration.

THE “GATES OF ROME” PROGRAMME

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1. Abstract

An Agreement of Programme was signed in the year 1994 between the various parties involved in a plan of global upgrading of the railway metropolitan networks and services, which aims to substantially increase the use of the rail mode for local transport in the metropolitan area of Rome. Now this policy is entering a new phase, with the launching of the “Gates of Rome” programme, which is promoted by the Department of Mobility and Transport of the Municipality of Rome. This project has a wider scope than that of upgrading the local rail service, because the requalification of the station nodes it is viewed as an occasion to upgrade the urban environment around them, and to create new urban centralities in the periphery of Rome and in the surroundings. The present document gives an outline of the Gates of Rome programme and of the institutional and co-ordination issues that can be presently envisaged. To introduce the Rome case study, a general overview of the state of the art of transport and land-use related policies is also given.

2. Introduction

This document describes the Rome case study. It was prepared as a basic documentation for the action COST 332 on innovative methods of co-ordination between transport actions and regional and local planning. The document is articulated in four sections:

- section 1 gives a general overview of the recent history of urban planning and development in the city of Rome;
- section 2 is devoted to a short presentation of the state of the art of land use and transport policies presently adopted in the city of Rome. Planning practices and regulatory measures are presented for several sectors: land use, parking, public transport, traffic;
- section 3 presents the “Gates of Rome” programme, which is, in short, a strategic plan of the Municipality of Rome aiming to govern the suburbanization process, through the upgrading of the metro and railway metropolitan system not only to solve mobility problems, but also to create new urban poles in the suburban areas;
- finally, section 4 is devoted to a short description of co-ordination aspects which will have to be faced for a successful implementation of the Gates of Rome programme, and of innovative methods that currently can be envisaged, which are the proper subject of the case study to be undertaken in the framework of COST 332.

3. A general overview of urban planning and development of the city of Rome

The starting point to present the recent history of urban planning in the city of Rome is the General City Plan (PRG - Piano Regolatore Generale) adopted in the year 1962, which is still the current master plan. The goal of the PRG was to develop residential land-uses for a projected population of 5 millions inhabitants, and a network of urban highways to connect new residential areas with a new concentration of industrial and, above all, tertiary activities in the Eastern quadrant of the city. This new concentration of highly attractive activities was called "Eastern Infrastructured Axis", referring to the planned linear development, which was to act as a hinge between the capital and its hinterland.

As a matter of fact, the plan to build new urban highways was discontinued (only 20% of the planned highways have been completed), while 95% of building areas were effectively developed, but these now serve a population of 2.8 millions of inhabitants, instead of 5 millions considered in the PRG, and the resulting density is relatively low.

The "Infrastructured Axis" - the official name given to the linear city - never got off the drawing boards. At the very moment of its conception, the plan was contradicted by the transfer of Rome's international airport from Ciampino (on the South-East side) to Fiumicino (on the South-West). This decisively reduced the attractiveness of the Eastern area for business offices. Office construction turned southward again.

In the absence of adequate infrastructures East of Rome, medium and high level residential construction was likewise attracted along southward highways. The eastern quadrant, lacking a strong structuring element, was saturated by low-cost, low-quality building.

Rome's historical centre and the immediately surrounding quarters - the daily destination of commuter flows from the outer districts, the metropolitan area, the region and still farther afield - grow more and more jammed. Moreover, the peripheral sprawl itself acts as a virtual wall, obstructing relations between the inner city and the metropolitan area.

By seriously impairing Rome's liveability, this chaotic development has generated an exodus to the outlying townships. Leading the way were manufacturing facilities and services; Rome residents followed.

The townships, which had been losing residents and business concerns to the capital for fifty years, are now being overwhelmed by the reverse flow. In fact, peripheral districts having the same structure as Rome's are mushrooming all around the old towns of the hinterland. Far from being corrected, the same hub-and-spoke model of development is spreading throughout the metropolitan area.

The new City Council of Rome, elected at the end of 1993, started a policy intended to recover the delay which had progressively deteriorated the City organisation and planning. The main goals of this action is the increase of green areas, inside and

outside the town, in order to reduce pollution and increase the quality of life. 18 thousand hectares have been added to the already foreseen green areas.

Degradation of peripheral areas is alleviated, through a recovery plan which uses 200 million ECU of public funds and regards areas inhabited by 700,000 people. Some of these projects use funds granted by the European Union through the URBAN programme.

As regards construction, local plans have been prepared for areas covered by illegal buildings, which house half a million people. On the other hand, administrative procedures for construction permits have been greatly simplified.

Finally, an ambitious undertaking, called "The Gates of Rome", is under way. This action is outlined in the par. 3 below.

4. Land use and transport policies

Land use plans: as stated above, the General City Plan (PRG) was adopted back in 1962. Many things have changed since 1962, and this was reflected in amendments to the Plan; the last one was adopted in 1995 and is an Environment Protection Amendment, increasing the green areas, designing a green belt around the city, and reducing new construction by 38 million cubic metres. Local plans are being prepared for specific areas, both in the centre of the city and in its suburbs.

Other interventions are included in the Rome Capital Programme, which grants the use of state funds, according to a specific law (Law 396/90 of 13/12/1990).

The Offices of Rome Municipality, mainly the Office for Land Use and the Office for Mobility and Transport, are issuing a series of technical and operational documents, in order to implement the policy adopted by the Municipality. This action will lead to the definition of the Master Organisation Plan for the Rome Metropolitan Area, which includes the city and nearby Municipalities.

Land use fiscal measures: construction of a building requires a permit from the Municipality, which implies the payment of a concession fee; the amount of the fee depends on the size and on the type of the building.

State taxes include items based on the value or on the income of the buildings owned by taxpayers.

Besides, a Municipal tax, called ICI (Imposta Comunale sugli Immobili - Municipal Buildings Tax) is based on the official value of the building, as stated in the Land Register; the range of yearly rates goes from 4 to 6 per thousand, according to municipal decisions. The Rome rate is presently set at 5.2 per thousand.

Parking plans: The organisation of parking possibilities in the city will follow a pattern that changes according to the capacity and to the requests, producing a subdivision into nearly concentric areas. In the inner part (Blue Zone), parking is forbidden as well as transit, except for residents and authorised vehicles. Around this

zone, in order to avoid illegal parking, a chain of short term parking lots is being implemented, where the time tariff adopted (1 ECU per hour) prevents the occupation by permanent users, leaving the parking capacity to the citizens reaching the area for their short term needs.

In the external city area, parking lots will be implemented near urban railways and streetcar lines, in order to foster the park and ride habits: more than 100 parking lots are foreseen for more than 50 thousand cars.

Public transport plans: The main concept in the reshaping of the transport organisation in the city is the massive use of the public transport system, especially through the use of rail lines, not sharing the road space with private traffic: the programme is known under the name of "The Iron Treatment".

The programme implies several facets: one is the upgrading of the existing network of railways, operated by the State Railways Agency; apart from long distance lines, there are 145 km of railroads serving the city and its immediate outskirts, and 250 km of railroads serving the region around the city. The network is completed by three railways, operating under concession, which pass in the inner city and connect it to the surrounding villages.

Secondly, Rome has two operating subway lines, and the network is being expanded and completed within 1999 with a first stretch of the third line.

Finally, the decline of the streetcar network is being substituted by a recovery, with the upgrading of the existing lines and the construction of new lines, all operating in a protected space.

The integration of the above networks will be the backbone of the public transport system of the city in the near future.

The 1962 General Town Plan (PRG) and its amendments, cover the general features of the transport field. Transport aspects are also considered in a law, especially made to take into account the specific requirements of the city, as the Capital of the Nation: it is the Rome Capital Programme, Law 396/90, adopted on the 13 December 1990.

The interventions on the subway network are part of the subway plan, originally defined in the Town Plan of 1962 and revised many times, lastly in 1991.

The adaptation for urban uses of the State Railways network is defined in a general organisation plan, issued in February 1993 and approved by the Municipality in April 1993; its implementation program is stated in an agreement, entered on the 7 February 1994 between Rome Municipality, Rome Province, Lazio Region and State Railways Agency (this agreement was issued as an "Accordo di Programma", based on the law Nr. 142/1990). The first implementation of the plan regarding the use of railways and streetcar network has been defined in the Transport Agenda, adopted by the Municipal Decision n. 349 of 1/12/1995.

Specific plans define the work on private railways and streetcar lines.

Public transport charging measures: Presently, the public transport system is operated by two organisations: one, COTRAL, manages the subway and the buses connecting the outskirts, the other, ATAC, manages the surface urban network. To increase efficiency, a strict operative and managerial co-ordination is implemented between the two organisations, and the desired end result is a unification; co-ordination is also attempted with the urban network of State Railways. The goal is to realise a network which is unified at least from the operative point of view: the network is called METREBUS.

As a part of the co-ordination between the various organisations operating the METREBUS system, a ticket integration is implemented: the same ticket can be used on the subway lines, or in the surface network for 75 minutes, or in one of the urban railway lines. The integration is also implemented for season cards, with several combinations of possible uses: subway, subway and buses, etc.

As an example of a wider approach, recently an agreement between the Municipalities of Rome, Paris and Berlin has established that season cards issued in Rome are valid also in the public transport networks of the other two cities, and vice-versa.

Traffic plans: The core of the policy of the Municipality with respect to traffic and to the wider aspect of mobility is the implementation of a wide Limited Access Area, called ZTL (Zona a Traffico Limitato) or "Blue Zone". The adoption of this limitation is instrumental to the overall transport policy, centred around the shift from private traffic to public transport.

The policy has been defined after a thorough study, conducted in the entire central area, covering roughly 1,550 hectares out of 30,000 ha of the city within the Great Ring Road; residents in the central area are 150,000. The entire Rome area has 2.8 million inhabitants, and a density of .64 cars per resident in 1991. The area under study covers 5% of the city area; in the morning, it generates 5% of the traffic movements outbound, but it attracts 27% of the traffic movements inbound. The Blue Zone, where access and parking are limited, presently covers 396 hectares, but could be expanded up to 585 ha.

The Blue Zone, in its present form, has been officially adopted with the Municipal Decision n. 4660 of 30/12/1994, as a result of the above quoted study. Its operation is continuously monitored, and changes dictated by the changing requirements are under experiment, in order to adapt the rules to the actual needs.

The adoption of the large Blue Zone has the overall objective to reduce to an absolute minimum the private traffic flowing in the area. Practically, all private traffic is banned, except for the categories which the law imposes: residents and essential operators. It is this last category, with its vagueness, which creates most problems, taking into account the specific functions concentrated in the area: the Government, the Parliament, the Presidency of the Republic, the embassies to Italy and to the Holy See, plus hotels, monuments, businesses, etc. The limitations are enforced from 6:30 a.m. to 6 p.m., from Monday to Saturday; among the variations considered, there are the extension to late hours, from 10 p.m. to 1 a.m., on Fridays and Saturdays, to avoid noise and traffic jams due to restaurants and spectacles, and the opening on Saturday mornings, as a trade off with the requests of shopkeepers. On the other hand, some streets are closed on Sundays, to permit easy leisure walking. The access to the Blue

Zone is possible through 53 passages, guarded by the Municipal Police; a plan exists to reduce the number of passages to 29.

5. Outline of the Gates of Rome Programme

The Gates of Rome programme has been prepared by the Municipality of Rome - Dipartimento VII Mobilità e Trasporti. The following description is based on a first outline of the project issued by this Department.

“Gates of Rome” is a catching and impressive name, which has already appeared in proposals and projects put forward in different contexts. Its promotion to the status of leading idea dates back to the end of 1994 when Walter Tocci, the Deputy Mayor and Councillor for Mobility of the Municipality of Rome, used it for the first time during a conference. He did so in a context in which the potential of the Gates of Rome was related to strategies both of mobility and urban re-qualification. Specific reference was made to the two most conspicuous and powerful infrastructural elements of the modern city of Rome: the Great Ring Road (Grande Raccordo Anulare - GRA) and the radial axes of penetration of the railway system (urban and underground). The elaboration of this guiding idea was based on verifying the length (nearly 350 Kilometres) and deployment of the railway lines into the city, with a large number (nearly 80) of existing stations. It is possible consequently to think in terms of converting the railway lines into a network, restructuring the urban aspects and operating frequency with a new master plan. The intersections between the GRA and railway mark the points of natural exchange with the current structure of the road system of the Rome metropolitan area. The GRA ring road, with its diameter of nearly 30 kilometres, represents the only continuous and homogeneous element that intersects all the railway lines entering and exiting from Rome. Its function could conceivably be modified from that of an interchanger of private/private flows between main thoroughfares into the city to that of private/public interchanger between road and railway.

The points of intersections between the GRA and the railway could be upgraded and converted to achieve a dual purpose: to become places of intermodal interchange capable of attracting users and boosting the use of public transport, and to trigger processes of rehabilitation of the degraded peripheral areas of Rome, by providing them with a new urban identity.

The work already carried out on the theme of the Gates of Rome in the Department of Mobility and Transport of the Municipality of Rome has approached the problem of the functional and territorial reorganisation of the city area, designing a strategy from the point of view of mobility planning within the more general framework of the overall planning strategy of the municipal authorities. It is hoped in this way to contribute to the formation of the Metropolitan Area Master Plan (Piano Direttore) and of the new General Urban Plan (Piano Regolatore Generale). The work was divided in two stages:

- in the first stage a global framework was designed, containing the elements deemed essential for determining the large-scale territorial relations that may be established by the principal lines of mobility (rail and road) through their point of contact with the local sites (the Gates). 57 sites were identified. They have been classified according to their location, distinguishing 4 layers: a) zone I nodes (8 Historical City Gates), b) zone II nodes (14 Modern City Gates), c) GRA nodes (12 New City Gates), d) metropolitan nodes (23 Metropolitan Area Gates). At the same time, a planning criterion of classification was considered, dividing the 57 sites into three categories, according to the importance and complexity of their relationships with the surrounding territory (which expresses their potential as new urban poles): i) local areas, where the station/node is located within large local areas and is involved in unitary programmes/projects of urban transformation generated by the stations themselves; ii) places, where the station/node lies inside narrower areas to be subjected to unitary projects of urban or district reorganisation, of which it represents the focal point; iii) poles, where the station/node takes the form of a unitary architectural element that is planned or relocated on a limited and well-defined urban environment. According to this criterion, 25 out of 57 sites were classified as local areas, 13 as places and, finally, 19 as poles. The 25 local areas identified represent, more specifically, the backbone of the Gates of Rome system, and a second stage of work was envisaged for them, allowing for the formulation of specific area projects. Besides, the global design of the Gates system is obviously not time independent. Then, considering the main programmes of the municipal authorities and the other authorities involved (the National Roads Agency - ANAS, the State Railways Agency - FS, the Ministry of Public Works, the Region, the Province etc.), as well as the implementation of the remaining elements of the PRG, it was possible to define three reference horizons for the overall implementation of the project: 1998, 2000 and 2010.
- in the second stage of the work single area projects are implemented, for the 25 local areas identified in the previous phase. Actually, this is a work in progress, and until now area projects have been completed for 5 areas to which it was deemed that priority should be given with respect to the Gates project as a whole. These areas are all located on the GRA, at the intersection with the main roads: Trionfale, Flaminia-Salaria, Anagnina, Collatina, Ostiense. Area projects are built following a common methodology, in which the development planned for the public railway transport network, which is the starting point, is viewed against the background of the urban territorial structure, superimposing the programmes on the present real conditions and emphasising the dynamics of the potential transformations. A critical scrutiny is made of the various components of the urban structure, including transformations already in progress in the area concerned by effect of other plans in action (national and regional transport plans, general urban plan etc.). In this scrutiny the interpretation was directed towards gaining deeper insight into the potential town-planning role of the individual station nodes. The final results are illustrated, for each local area, in 20 graphic tables drawn to a scale of 1:50,000, in which the following topics are elaborated: networks (public railways lines/stations and road transport/parking infrastructures); macrostructures for residence and work activities; amenities (environment, archaeology); main

functions connected with the goal of encouraging longer period stopovers and urban enhancement (longer-term stopping, tourism, socialisation). These tables present the results of the planning exercise in the form of time independent layout patterns, in which the specific structural elements pertaining to the Gates programme are represented.

Besides the work already done, the challenge facing the Gates of Rome programme is how to give concrete form to the hypothesis that the railway is the most obvious and powerful common denominator of the present city system. Its points of contact with the city and the metropolitan area have a potential role not only as places of modal interchange but actually as places for social relations. Consequently, in the structural model proposed the nodes can assume a number of different roles, creating a diffuse system of new urban and metropolitan centrality vitalised by the railway lines.

Compared with the experiments carried out in other large European cities, where programmes of re-qualifying the urban area through the modernisation of the railway system and of the main stations were tried out before they were in Italy, the case of Rome has a number of peculiarities. One of these is the large number of existing peripheral stations that, as a result of the restructuring of the railway service, have only now become available for new metropolitan functions. Furthermore, as we said above, their location coincides almost exactly with the circle of the ring road (GRA), which passes through a large proportion of the more loosely connected and chaotic peripheral zones. Without any action, the structural characteristic of the periphery of the Rome area will continue to make inevitable a massive use of individual means of transport. On the contrary, the effective implementation of the Gates system will provide high quality service structures and activities to the peripheral areas, thus making it easier to achieve the aim of reducing travel also of a non systematic nature, and contributing to restoring some balance in the flows along the transport lines, making it worth while and attractive to park and ride.

Current estimates of about 110,000/130,000 vehicles entering Rome along the consular roads at peak hours, together with the evaluation of vehicle flows and the study of origin-destination maps, has led the Department of Mobility and Transport to make a first hypothesis for the overall dimensions of the parking facilities at the interchange sites. Besides this, an analysis of potential tourist uses and of places of social aggregation, whether existing or being introduced in new built-up areas, has enabled a more precise definition to be made of the function of the Gates as multifunctional places capable of satisfying, through a wide range of services, the need of new poles of urban centrality.

Finally, an analysis of the relations between the Gates system and the urban structure has been performed, showing among other things that the strategy adopted of boosting the interchange nodes actually tends to spread over three concentric rings:

- the central ring represented by the Lungotevere-Corso Italia-new internal ring road (the tangential system planned to run alongside the railway line from Tiburtina to Ostiense), which delimits the historic centre areas and those of the 19th century expansion. Currently, the central ring thus defined is composed of two quite different semi-arcs: to the south-east the railway line and the system of stations/nodes (from Tiburtina to St. Peter) already identified by the PAG

(Programma di Assetto Generale - General Organisation Plan regarding railways stations and areas) as gates of the historical city; to the north-west the Corso Italia-Lungotevere road system, which is a linear element supporting high speed access to the existing historic centre system;

- the intermediate ring, which crosses homogeneous and relatively compact areas of the urban periphery roughly coinciding with the area urbanised over the '50s. The ring is composed partly of existing road sections, which need restructuring to varying degrees, and partly of planned sections;
- the external ring is the existing GRA. Its function is to represent the element supporting the outermost Gates of the urban area. Together with the local road system, it provides a complex infrastructural system that organises the peripheral area, which consists mainly of small scattered nuclei.

The three ring system has been proposed and discussed on several occasions within Department VII of the Municipality of Rome. The conclusion has been reached that, in view of the homogeneous nature of the areas crossed by the various rings, it is possible to envisage a model for the design and management of mobility planning action, which can be combined with the objective of reorganising and re-qualifying the city in the single urban areas. The model could be based on the following main ideas:

- central area (inside the central ring): the historic centre is the pedestrian part of the city, dominated by public transport centred around the interchange nodes of the inner ring, on the underground and railway lines crossing it, as well as on the planned new tram network. Most of the parking facilities would be reserved for the residents, with the remaining facilities made available on a rotating basis at a generally high tariff rate that would vary according to the time of the day, in order to allow utilisation compatible with the structure of the historic centre (evening hours, holidays, etc.);
- inner peripheral area (around the intermediate ring): this area does not appear to be fully served by public transport. The transport system must therefore be of the mixed type, in which the main radial links, corresponding to the axes of the city boroughs, may be served by the underground or surface transport facilities, while the remaining transport needs, including peripheral travel from one quarter to another, can only be satisfied by private transport. It will be necessary to reduce the number of systematic journeys and redirect the non systematic ones towards the interchange nodes. Payment parking can be introduced only in the greater commercial and tertiary areas.
- outer peripheral area (around the GRA): this area is characterised by a very low overall density and by scattered built-up areas, which cannot be served efficiently by public transport. Therefore, the use of private vehicles becomes predominant, while public transport may be activated only by means of points of concentration and interchange.

6. Institutional aspects and procedures of co-ordination

The study of institutions and procedures of co-ordination involved for an effective implementation of the strategic Gates of Rome programme, described above, is the specific object of interest in the context of action COST 332. As explicitly stated in the outline of the project produced by the Department of Mobility and Transport, the basic conditions for implementing the Gates programme are the following:

- integration of the projects and programmes of all the actions carried out in the areas identified or related to them, on the assumption that the complex, and in any case interdisciplinary, nature of the theme and the need for high functional and architectural quality cannot be guaranteed by the simple process of side by side urban zoning;
- co-ordination of the project and implementing tools so as to ensure the required involvement and co-ordination of a number of different public and private parties, as well as the required simplicity and rapidity of the procedures;
- programme multifunctionality
- simultaneous implementation of those works that are considered in the layout programmes as preliminary to the development of the project, which must be treated as invariant elements of the system. They include actions that guarantee minimum conditions for the proper functioning and the architectural coherence of the station-node. These minimum conditions must include: i) the implementation of work to ensure full accessibility of the station-node, above all via the road infrastructures, as well as maximum efficiency of the public mass transit lines; ii) the provision of specific park and ride facilities and other inducements to use the interchange and stopping place features; iii) a complex of works capable of interfacing the station-node with the urban context; iv) the visibility of the Gates system as a whole, i. e. the linking up of the interchange nodes not only from the functional and informational point of view, but also as formally identifiable components of the city system.

To achieve the required conditions for a successful implementation of the Gates programme, a lot of work remains to be done. The steps of implementation of future work already identified by the Department of Mobility and Transport are:

- to obtain the approval of the Gates programme, with a formal deliberation of the Municipal Council;
- to organise the consensus of several stakeholders: citizens, land owners, institutions involved, workers in the retail sectors etc.;
- to identify and implement working structures able to: i) manage efficiently the interfaces among the institutions involved by the specific area projects (ANAS, FS, Region, Province, archaeological supervisors, etc.), and the relationships with private stakeholders; ii) prepare the detailed plans and feasibility studies; iii) co-ordinate the legal and operative actions required to implement the plans.

How these steps will be concretely performed in the next years, using the instruments of the present legislation or those that could become shortly available - depending on the ongoing reform of Italian legislation concerning the functioning of public administration at central, regional and local levels - will be the subject of the Rome case study in the context of the action COST 332.

As a main analytical issue, the study will consider that the procedures of institutional co-ordination must be designed at two levels:

- on a global level, seeking consensus on the global goals and framework of the programme by the involved public actors and private stakeholders;
- on a local level, building the legal and operative framework (programme agreements, conventions etc.) required to implement a co-ordinate actions on each single component of the general programme (i. e. a single Gate or a group of Gates)

As concerns in particular the global co-ordination level, two phases can be considered:

- the first, until about the year 2000, involves the actions to be performed on the territory of the Rome Municipality, which is very large (125 square kilometres) and includes 34 urban Gates. Here the main issues at stake are: i) co-ordination among internal departments of the municipal authority, and especially between the Mobility and Transport Department, which is now proposing the Gates programme, and the Land Use Planning Department. However, also other departments may be interested, such as that in charge of issuing plans of retail trade activities (which, obviously, will be strongly affected by the realisation of the Gates); ii) co-ordination between the Rome Municipality and several national and regional institutions, including, in particular, the National Roads Agency (ANAS), which is involved in all the GRA Gates projects, and the National Railways Agency (FS), which is involved in almost all the realisations of the programme. FS is operating through METROPOLIS, a special agency in charge of all the projects of rehabilitation of railway patrimonies located in town areas. Another national institution which is very important to consider in the co-ordination process, considering the great historical values existing in the Rome area (not only in the centre, but also in the surrounding territory), is the Archaeological Superintendence; iii) co-ordination of the debate with associations of citizens and relevant stakeholders, and, more generally, of the communication strategy to be implemented with the aim to reach consensus on the programme.
- the second, from year 2000 until 2010, which will include the actions to enlarge the implementation of the programme on the metropolitan territory, completing the remaining 23 Gates. Here the main issue is, of course, to guarantee the required co-ordination between the Rome Municipality and the municipal authorities surrounding it, adding a new layer of co-ordination to those which must be realised in the first phase. It is important here to monitor the process of formation of a new layer of Metropolitan Authority, which may be allowed by the implementation of the law Nr.142/1990. This law, regarding the new discipline of local authorities in

Italy, prescribed, among other things, the creation of Metropolitan Authorities in the largest Italian cities, giving them the responsibility of metropolitan area wide services such as transport, energy and water delivery, refuse disposal etc.. On this subject, the law has been until now totally disappointing, because the rules set out to build the new layer of metropolitan authority were not realistic. In fact, the existing municipalities had to deprive themselves of functions and related resources in favour of the envisaged metropolitan authorities, and this on the basis of a programme dictated by the Regions, without any substantial concertation. Now, thanks to the changes to the law Nr. 142/90 recently proposed by the Italian Government (and presently discussed by the Parliament), a new and more realistic approach to the building of metropolitan authorities can be envisaged, based on the concerted action of all the 120 municipalities existing in the Province of Rome territory. If the proposal to modify the present legislation is approved, and, therefore, in the next few years, a metropolitan conference grouping all the municipalities of the Rome area is constituted, this institutional context will become the natural framework in which the Gates of Rome programme may be discussed and further implemented.

MEMORANDUM
OF
UNDERSTANDING

TECHNICAL ANNEX TO THE MEMORANDUM OF UNDERSTANDING
TRANSPORT AND LAND-USE POLICIES
Innovations in institutional arrangements for coordination

A. Background

The importance of the interaction between spatial planning and management on the one hand, and the conception and operation of transport systems on the other, is fully recognised. Many studies have, for example, highlighted the influence of land use and urban forms on the modal split (between means of transport). Similarly, we know that the spatial organisation engendered by the evolution of the production process is increasing mobility requirements, both for people and goods. The development of the suburban habitat has favoured the growth of multi-car households. The growing polarisation of commercial structures has also led to an increase in car use.

At the same time, transport networks contribute to a country's dynamics. High speed travel in particular, whether regional or national, road or rail, enables transport networks to be organised on a basis of connectivity rather than proximity. At urban management level, construction norms for residential and professional parking places will be a key factor in the use of public transport.

Progress in the field of transport economics and geography has led to a better understanding of the mechanisms of the interaction between transport systems and spatial organisation and highlighted the dangers of a strictly sectorial approach to transport and planning policies.

Public action needs coherence; sectorial coherence (between the various technico-administrative fields), regional coherence (between the various politico-administrative levels) and temporal coherence (between the various time-scales of the administrative and planning procedures).

Research projects on the analysis of the interaction between transport and spatial organisation are as numerous as projects on the institutional management of this interaction are rare. There is, therefore, a great need for knowledge on this subject. The cost, in political and economic terms, of the dysfunction affecting the transport flow and the regions as a result of the absence of coherence in public action justifies considerable scientific investment.

COST cooperation is judicious for four reasons:

- first, a comparative approach would seem indispensable since the variety of professional, institutional and technical backgrounds present in the European transport sector appears to be a guarantee of methodological creativity;
- second, experiences exchange remains one of the most effective forms of innovations dissemination; from this point of view the participation of operational players to some phases of the COST action 332 should be considered as a valuable asset;

- third, the transfer of national models - in terms of management procedures and the way in which outside expertise sought, to give but two examples - that the opening-up of Europe will gradually introduce through development companies and consultants, will create a unique opportunity for a thorough renewal of methods which must be accompanied by a scientific approach, since this is the only way to foster the synergy of the different technico-economic cultures;
- fourth, the development of large cross-boundary infrastructures under the impetus given by the European Union will alter the spatial organization of territories at stake and will encourage to bring closer institutional planning process on both side of the boundary.

The Transport Programme of the European Union does not cover the research to be carried out with in this Action. However, the results of the Action could contribute to the definition of the next Transport Programme within the 5th FP.

B. Objectives and benefits

The main objective of the Action is to evaluate innovatory institutional coordination arrangements between transport and regional planning projects. Local effects will be emphasized.

Nothing to be gained, in fact, from analysing the modalities of interaction between transport and planning if no measures exist to coordinate decisions in these two fields of public action. These arrangements for coordination are now all the more important since on the one hand today's societies propensity to favour sector-based approaches becomes more pronounced and on the other hand competitive situations tend to be established between bodies in charge of transport and land-use policies respectively.

In scientific terms, a joint assessment of the researches carried out at the national level constitutes an undeniable more value, naturally provided that comparability conditions have been guaranteed first. This approach will lean on the main skills gathered in the COST group, i.e. geography and planning, economical geography, sociology and local government studies.

In operational terms, the formalization of the methods of coordination between transport projects and regional planning will enable public authorities to avoid a considerable number of costly dysfunctions resulting from an absence of spatial and temporal coherence between sectorial policies.

Moreover, it is not improbable that methods tested in the transport sector may be applied to other fields (water, electricity, environment).

C. Scientific programme

The tasks which are planned are:

- T1: Bibliographical studies;
- T1.1: Selection of documents related to the interactions transport/land use policy building up of bibliographical lists, comparison of those lists, validation of the lists and key words;
- T1.2: Inventorying and listing of works dedicated to arrangements for coordination between transport and land-use policies; comparison and validation of the lists;
- T2: Launch colloquium;
- T3: Case studies;
- T3.1: Spotting of arrangements for coordination, assessment of the case studies feasibility, mobilisation of the concerned operational actors;
- T3.2: Inquiry works on the case studies; comparison of the first results, drafting of monographics, comparison of monographics;
- T4: Opinion enquiry to local political representatives;
- T4.1: Drafting of the terms of reference for implementing and working of the enquiry, selection of a consultant to implement the enquiry, building up of the sample;
- T4.2: Carrying on, working and synthesis of the enquiry;
- T5: Theoretical synthesis of the case studies;
- T6: Recommendations and operating conclusions;
- T7: Multilingual glossary;
- T8: Closing colloquium;

The aim of the launch colloquium (T2) is to mobilise operational local partners.

The enquiry to local political representatives aims to better know the representation that they have of their intervention field and the interactions of their field with other sectors of the public authorities actions. This enquiry therefore aims to help the understanding, therefore to overcome, some of the difficulties in implementing arrangements for coordination. This enquiry will make best use of the existing national and European networks, the access to which will be made easier by the signatory countries.

The theoretical synthesis of the case studies (T5) will permit to formalize the various types of institutional arrangements for coordination; their adaption relative to various interaction mechanisms which was put forward by the bibliography; the conditions of their good implementation.

The recommendations (T6) will permit to provide to the operational partners with an assessment of the institutional arrangement in the best position to answer their needs for coordination between transport and land-use policies. These recommendations will be put into perspective with the results of the enquiry (T5).

The closing colloquium (T8) aims at disseminating the results.

Research done in the case studies (T3) will be to work out the following questions:

- conditions of the institutional or organizational innovation genesis, and analysis of its specificities;
- study of the implementation of the operation
- highlighting of each arrangements efficiency from the point of view of the objective of transport and land-use policies coordination

These arrangements for coordination must correspond to innovations as regards institutions, procedures, management or any public action tool explicitly in charge of the coordination between spatial planning decisions and transport decisions. They can be related to national, regional or local territorial level and take or not the scope of legislative provisions.

In each case study the initial task will begin by recalling the institutional framework for transport and land use policies within the countries concerned.

The case studies planned during the preparation of the Action are:

Belgium: Coordination between land-use and transport policy in Flanders.

Beyond the apparent coherence in terms of future priorities in transport and land-use planning that emerges from both policy documents applying to Flanders, this study intends to analyze the fundamental differences with respect to the principles and the implementation approaches coming out of these documents. So its result will be suggestions of new cooperation forms between land-use and transport planners, both at the conceptual and operational level.

Denmark: The South Scandinavian Cross Border Region.

From the analysis of the implementation of the planned bridge between Copenhagen and the South Swedish city of Malmö as a tool in strategic planning, this study aims at *identifying new bodies of planning that will be created as will develop this first cross-national integrated large-city region outside the European centre.*

France: Coordination between transport and urban planning in new road planning schemes ("Dossier de voirie d'agglomération" or DVA).

The aim is to analyse the difficulties in implementing the DVA procedure which is an arrangement being theoretically in charge of a coherent development of both road networks and urban land-use planning.

Greece: Road Transport Infrastructure Development and Town Planning Development in Thessaloniki.

Major conflicts of responsibilities and priority schemes for transport infrastructure and land-use development are observed in the greater urban area of Thessaloniki. The research will determine whether the short-term "Transport Infrastructure Development Plans" are in accordance with the previous long term plans and with the "Land-Use Development Plan" approved in 1985 and will look into the technical and political issues involved in those both major plans of the city in view of the short term priorities emerged by the role of the city as Cultural capital of Europe in 1997.

Italy: The procedure of "Agreement of Programme interdependency between transport and land use planning" in Lombardia.

A new legal provision, the so called "Agreement of Programme" determines the framework for coordination between the various parties involved in urban development projects. The research will study the implementation of this legal provision in the framework of an "Agreement of Programme" involving the region of Lombardia, the national railway company and the regional railway company.

Spain: Large scale transport infrastructure and urban development in the metropolitan region of Barcelona.

In the region of Barcelona, several major transport projects - road infrastructure, High Speed Train, port and airport - encompassed in a coordinated land use planning within the so called "Plan Delta". The research will analyse the planning process and the spatial changes deriving therefrom.

Sweden: Social and environmental impacts of land-use and transport planning in Sweden; status and scope for improvements.

The research will identify reasons for failure or success of various planning processes through a case study addressing the process of decision making with respect to various institutional organizations in charge of transport and land-use planning, for example with focus on the urban sprawl and the fixed link between Sweden and Denmark.

Switzerland: Comparative analysis of Geneva, Lausanne and Bern.

The aim is to compare the interactivity between transport and urban land-use policies in the three cities of Geneva, Lausanne and Bern. To do so the work will be carried out at federal, cantonal and municipal level.

United Kingdom: Transport and planning: Competing modes of network management.

This study will develop a typology of social, technical, institutional and spatial conditions facilitating the development of provisions regulating the transport demand ("Demand Side Management").

Other case studies may be carried out by countries that will join the Action after its start, in particular those that have already shown an interest (Finland, in the framework of the national strategic project "Transport and Land Use", as well as the Czech Republic).

D. Organisation and timetable

The final breakdown of work and the setting up of working groups will be decided in the Management Committee.

Each signatory country is to be responsible for one case study (T3) and will participate in the joint assessment of the results (T5 and T6).

Each signatory country will contribute to the bibliographical analysis (T1) and the terms of references of the opinion enquiry (T4.1). The opinion enquiry will be subcontracted to a specialised consultant.

Each signatory country may also participate in the other tasks of the programme.

The tasks will be carried out according to the following time chart:

TASK	Semester							
	1	2	3	4	5	6	7	8
T. 1.1								
T. 1.2								
T. 2								
T. 3.1								
T. 3.2								
T. 4.1								
T. 4.2								
T. 5								
T. 6								
T. 7								
T. 8								

The total duration of the Action is four years.

E. Economic dimension

Nine countries actively participated in the preparation of this Action. On the basis of the information available during the preparation of the Action, those countries planned to earmark an average three men months per country and per year. The countries which transmitted this information are Belgium, Denmark, Spain, France, Greece, Italy, the United Kingdom, Sweden and Switzerland. The coordination costs will be partly financed by the Commission.

The estimate of the total costs including the coordination costs is 1.700.000 ECU.

This estimate is valid only if the nine above mentioned countries participate in the Action. Any withdrawal or other participation would alter this estimate.

COST TRANSPORT OVERVIEW

COST Transport is one of 17 domains existing in COST at the present time.

It was to be one of the seven areas seen as best suited for this new form of collaboration, which was officially set up by a Ministerial Conference in November 1971.

The Transport area lends itself particularly well to the COST framework, both because it combines aspects from a number of disciplines, and because of the need for harmonisation at European level. Liaison with the Transport Ministries and Administrations in the various countries is a key element of these COST Actions.

The COST Transport Secretariat is located within the Directorate General for Transport of the European Commission. The location with the staff managing the Fourth Framework Transport RTD Programme, as well as the proximity with the Common Transport Policy Directorates, enables close collaboration between Transport Research activities and serves as a basis for further political action.

COST Transport Actions are authorised and supervised by the COST Technical Committee on Transport which, in turn, reports to the COST Committee of Senior Officials. Both of these decision making bodies comprise representatives of the national governments of the COST countries.

Actions Underway

- COST 318: Interactions between high speed rail and air passenger transport
- COST 319: Estimation of pollutant emissions from transport
- COST 321: Urban goods transport
- COST 323: Weigh in motion of road vehicles
- COST 326: Electronic marine chart display
- COST 327: Motorcycle safety helmets
- COST 328: Integrated Strategic Infrastructure Networks in Europe
- COST 329: Models for traffic and safety development and interventions
- COST 330: Teleinformatics links between ports and their partners
- COST 331: Requirements for pavement markings
- COST 332: Transport and Land-Use policies
- COST 333: Development of new bituminous pavement design method
- COST 334: Effects of wide single tyres and dual tyres
- COST 335: Passengers accessibility of heavy rail systems
- COST 336: Falling weight deflectometer
- COST 337: Unbound granular materials for road pavements

Actions in preparation

COST 338:	Information overload in the field of traffic signs
COST 339:	Small containers
COST 340:	Towards an intermodal transport network: Lessons from history
COST 341:	Habitat fragmentation due to transportation infrastructure
COST 342:	Parking policy : Effects on Mobility and the Local Economy
COST 343:	Reduction in Road Closures by Improved Maintenance Procedures
COST 344:	Improvements to Snow and Ice Control on European Roads
COST 345:	Procedures Required for Assessing Highway Structures
COST 346:	Instantaneous Energy Consumption and Emissions of Road Vehicles, especially of Heavy Duty Vehicles

Completed Actions

COST 30:	Electronic aids to traffic on major roads
COST 30 bis:	Same aim as COST 30 but with demonstration action
COST 33:	Forward study of passenger transport requirements between major European conurbations
COST 301:	Shore based marine navigation aid systems
COST 302:	Technical & economic conditions of the utilization of electric road vehicles in Europe
COST 303:	Technical and economic evaluation of dual-mode trolleybus national programmes
COST 304:	Alternative fuels for road vehicles
COST 305:	Data system for the study of demand for interregional passenger transport
COST 306:	Automatic transmission of data relating to transport
COST 307:	Rational use of energy in interregional transport
COST 308:	Maintenance of ships
COST 309:	Road weather conditions
COST 310:	Freight transport logistics
COST 311:	Simulation of maritime traffic
COST 312:	Effects of the Channel Tunnel on traffic flows
COST 313:	Socio-economic cost of road accidents
COST 314:	Express delivery services
COST 315:	Large containers
COST 317:	Socio-economic effects of the Channel Tunnel
COST 320:	Effects of E.D.I. on transport
COST 322:	Low Floor Buses
COST 324:	Long term performance of road pavements
COST 325:	New pavement monitoring equipment and methods

European Commission

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This report contains the proceedings of the COST 332 inaugural colloquium held in Barcelona on 24th and 25th October 1996. The main objective was to create a common body of theoretical and empirical references aimed at facilitating the Group's work on "institutional means of coordination between transport projects and regional planning" in order to improve the basis for future work within the Action.

The document is divided into three parts. Firstly, information by subject and by discipline, on what is at stake, and the difficulties of co-ordinating public action. This uses bibliographic analyses and includes the opinions of geographers, planners, political analysts and sociologists. Secondly, an inventory of national approaches to mechanisms for coordination between transport and planning and, finally, the presentation of some of the case studies on which future work will be based.

