

International Association for Regional and Urban Statistics

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185.

EUROPEAN REGIONAL DATA BASE INFORMATION PROJECT

E.D.I.P.

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## I. INTRODUCTION

The objectives and general guidelines of the present project were considered in the third point of the agenda of the 24th Meeting of the Board of the IARUS, in the session which was held in Budapest on the 14th and 15th of May 1979. On that occasion two things were considered: the possible utility of the project, and whether it matched up to the objectives of our Association which, according to Article 11, 21 of the Statutes has, among others, the following aims:

- a) to promote the production and use of statistical data to meet the needs of regional and urban administration, research and planning and for other social and economic purposes.
- b) to further the international comparability of regional and urban data.

and

- c) to exchange professional knowledge relating to regional and urban statistics.

Thus it was recommended that the project should be developed and given form through the relevant research, so that once it was finalized it could be presented for debate at the 25th Meeting of the Board to be held at Exeter from the 20th to the 23rd of May 1980.

Before going on to pick out the most interesting aspects of the present document, it is worth giving some consideration to the motives behind this project and the context in which it is situated, in order to allow a better understanding of both its importance and its limitations.

With regard to the motives it must be pointed out how the interest within the scientific world in regional problems and approaches has grown in recent years. This is due to many factors - some of which are mentioned in the text- which range from the explosive growth of the great conurbations and metropolitan areas, to the development of sophisticated multi disciplinary techniques of analysis of economic and social behaviour patterns and to the crisis in the regional organization of the state.

This growing interest in the regional problem has not however, generally speaking, been supported by the organization of flows of statistical information to facilitate the task of those interested in the analysis of these phenomena. In this context one must make an exception of the advantages achieved by EUROSTAT in its attempt to supply statistical information, which is limited however to the so-called "European Standard regions" within the EEC.

The problem of making available statistical information on all the kinds of regional divisions in all Europe continues however to be a current and relevant one. It is not just having certain parameters (statistical information) for a certain regional division chosen in function of certain concrete operational objectives (the case of the standard regions). It is a matter of having real freedom to choose the most suitable regional division for the objectives of the research and analysis which it is planned to carry out. It would be useless not to face up to this fundamental fact. Any division of a whole into its parts (or regions) implies a value judgment. And so it is necessary to give researchers the statistical information referring to the territorial division or region which they themselves have freely chosen.

It is this last aspect which tries -within the limits imposed by the institutionalized practices of the storage of statistical information which exist in the different countries

of Europe -to be the central axis of the present project. It tries to give the maximum versatility to the aggregations of statistical variables so that researchers can freely choose the "regions" with which they want to work, without the problems and restrictions imposed by the powers that be which oblige the reading of events within the limits of their own proper norms. And this means that it starts from the basis of the principle of freedom of information for independent analysis with all its consequences. The use which is made of this freedom is a question of the moral and political principles of those who carry out the analysis of the data which it is hoped to facilitate. Thus, with the tools which will be placed at the disposition of the scientific community, one can break the reified exigency of that Leviathan which, at the same time as it demands the postulation of all reasoning according to the principle of "say it in figures", carefully keeps all the statistical information for its own exclusive and proper use.

Two facts must be pointed out when referring to the context of the project. Firstly, an essential fact. The project, in its global outlines, would not have been born without the existence of an association which links statisticians for the most part, belonging to different European countries, and which has shown, during decades its interest in the free circulation of information. The International Statistical Yearbook of Large Towns 1972, among other publications, makes plain this wish to develop a statistical language which allows the intercommunication of the problems which affect the urban communities of different countries. The present project tries to direct the interest of these professionals to new objectives: the regional dimension of statistical information, and from a new standpoint, the changes in these caused by the technological developments of recent years. Today, in the computer era, it is strategically necessary to create information files, deposited within a host, which are accessible to investigators all over the world through the telecommunications networks (EURONET among others). The aims of diffusing the information are always the same. However the medium has changed, and in

*this context one must not forget the statement of MacLuhan, that the medium is the message.*

*Secondly, it must be pointed out that it would be wrong to think that the project which is presented here is unique and privileged. There are other initiatives. There has taken place what the antropologists call "cultural parallelism". When the group which was elaborating the present project had carried out two months of work sessions, they learned of the Turin Symposium (17th-22nd of March, 1980) organized by the "International Federation of Data Organization", which focused, among other things, on "country reports on currently operating local-regional data bases", pursuing similar objectives to a certain extent. However it was decided to continue with the project which was already begun with the firm decision of establishing the relevant contacts once the project had been finalized and presented for the consideration of the Board of the IARUS, thereby fulfilling the obligation which had been taken on. This, in practice, means that it will be necessary to make the contacts and the necessary cooperation with the IFDO, if the IARUS considers the present project to be valid in its general outline. In this connection it should be pointed out that Prof. Martinotti, President of the IFDO, has shown his interest in knowing the contents of the project, as soon as it has been considered by the Board of the IARUS.*

*Having stated the above it is necessary to make some brief remarks on the content of the document. In the first place it must be pointed out that there has been no attempt to make a valuation of the costs of implementing the project for various reasons. Firstly a detailed programme cannot be evolved without knowing the valoration of the strategic and tactical options adopted by the Board of the IARUS at the Exeter meeting. Secondly the project is conceived with a modular design. This means that setting up module 01 (Yearbook indicators) is easy to do and could be carried out immediately. The bringing into*

operation of successive modules (entering data from the Censuses of Population, Agriculture, etc.) will have to be the subject of a technical and financial study, case by case. In any event, once the project has been approved by the TARUS, contacts should be initiated with potentially interested organizations (ranging from IFDO to European foundations), and only from the information obtained should a detailed study of the costs of the different modules be elaborated.

The project deals in the first place (Chap. II) with preliminary hypotheses and objectives, some of which have been pointed out in the present introduction. In the second place (Chap. III) it deals with the technological and methodological aspects of the data base, and especially with the selection and justification of the Basic Spatial Unit. It also gives special attention to the functions which the proposed information system should be able to carry out. Within this chapter all that which refers to the documental base of the System (the European Division referral file) is treated in certain detail, since it is considered crucial for the adequate "contextualization" of the statistical information which it is hoped to organize. Chapter IV deals with the priority contents of the data base, while making an empirical analysis of the possibilities offered by the existing and accessible statistical publications. In Chapter V, besides the presentation of some examples of analysis, the essential features of the method of work and the organizational forms necessary for carrying out the project are given.

Having made this brief description of the motives, context and content of the project it only remains to state our gratitude to the institutions which have made this research possible and to the collaborators for their disinterested efforts.



I would also like to express the wish that this project will be one more factor in the integration of all the members of our Association, contributing to the reinforcement of our belief in the need to promote statistical language as a privileged tool of communication between the complex societies we live in.

Lluís Carreño Piera

President of the International Association  
for Regional and Urban Statistics (1978-79)

## II. PRELIMINARY HYPOTHESES AND BASIC OBJECTIVES

### II.1. The historical and political background of the region.

The European area is at present in process of integration. The historical European regions, based on linguistic features or on geographical characteristics which go beyond political divisions, along with the metropolitan areas which have arisen in the recent past for functional reasons, make up however a solid regional framework. In this way the specific nature of the regions which make up Europe is maintained.

A double process has taken place in Europe during the last two decades. Europe has stopped being understood as the sum of its independent and separate states, and the governments of these same states, as well as the supranational institutions, have progressively come to recognize the diversity of the regions of Europe. From the middle of the fifties the concept of the region as a highly significant political, administrative and economical unit became generalized; questions began to be raised about problems of regional development and the first research in this field carried out.

In the countries of Europe industrial development has often worsened regional inequalities, increasing social and economic inequalities of all kinds between the regions of the same state, creating regional differences in population levels, emigration and immigration, levels of income and consumption, etc. It is not surprising then that concern about regional imbalances is increasingly expressed by politicians, administrators and society in general in these countries.

The worsening of the imbalances between regions has given increased weight to arguments demanding administrative and institutional decentralization, and the strengthening of decision making centres and institutions within the regions.

Although questions referring to regional growth and imbalances acquired relevance and actuality in recent years, due largely to the rapid and intense industrial development which took place after the Second World War, the region, understood in the most generic sense as a sub-state area, had already shown itself to possess, during some long time, considerable significance and interest, though for very different reasons.

The survival and continuing protagonism of the European regional system cannot be understood without referring to its feudal origins. The autonomous and self-sufficient economic and social organization of the feudal territories caused or favoured the internal unity of some of the regions within Europe.

The formation and consolidation of the absolutist states in Europe signified a testing process of centralization and concentration of political and economic power in all Europe, along with the other functions attributed to it: administrative control, public order... With absolutism, then, there took place a process of unification of areas which had been almost completely independent until that moment.

In a context of strong demographic increase and of the expansion and diversification of production, the modern European states increased and amplified their functions or areas of control and intervention, perfecting their mechanisms of management and information.

Linked to the state there arose a political and technical-economic concept of great importance: the economic agreements,<sup>(\*)</sup> the negotiations about the distribution of the costs of the state among the different areas making up the state. And, in consequence, the discussions on the sharing out of spending and taxes.

The first censuses as balances of the wealth and inventories of the human resources and factors of production of the different regions of the state, were the basis for the calculation of taxes.

(\*) conciertos económicos

The development of the science of Statistics and the shaping of the complex state apparatus responded to the need for information for the control and administration of the affairs of the state.

The expansion of the services of education and health, as well as the character and the public responsibility which they later developed, along with the greater state intervention in economic activities (investments in important sectors, and in energy production and the general infrastructure) multiplied the regionalization problems of the services and investments of the state.

The state defined and took on the organization, elaboration and diffusion of information. As far as stock data was concerned, this generally came on a territorial or regional basis. However flow data such as economic forecasts and accounts, has generally been organized and presented in order to illustrate and quantify situations common to the whole of the State.

In the economic expansion which followed on the post-war reconstruction, the orientation of plans of economic programmes and coordination changed from being global and sectorial to being elaborated on a regional basis.

The consciousness of the economic differences and imbalances between regions in which economic development had not taken place at the same rate nor in the same way, has been one of the more important reasons for the systematic incorporation, of the region in plans for economic growth. Moreover, despite the lesser importance of the political instruments which regional planners dispose of (regional statistical information is one of them), this regionalization of economic policy has in its favour the conviction of its greater effectiveness. It is accepted that there is a much closer relationship between economic growth and public economic policy at regional level than at state level. There are greater difficulties and reasons for not believing that the index of economic growth at national level is raised as a direct result of economic policy, when this is not true of the regional economy.

Industrial development accentuates the phenomena of dependence, of concentration of population in some regions and depopulation of others, of relative backwardness etc., and the extension of democratic and representative forms and structures, as well as the demand for responsibilities by the regional entities, demands a reconsideration and institutionalization of the region. The region tends to recuperate and/or obtain a greater protagonism in the control and management of economic, political and social activity (as well as a greater participation in the organization of the state apparatus). Certain regions are going through the process of recuperating their autonomy and own representativity within the state. The right of the people to their own culture, history and institutions eventually becomes part of the restoration of public liberties, universal suffrage and the right to free expression and political association.

Political and administrative decentralization raises new questions about its organization and function when confronted with the problems of town planning, the policies for the reconversion of sectors, the preservation of the architectural heritage etc. The transfer of resources and responsibilities from the central administration to the regional political centres is greater every day. It therefore becomes necessary to develop a regional policy which defines the interregional distribution of resources, and the repercussions of this for their distribution, and the carrying out of plans and programmes of public services, etc. A regional policy will be inviable if precise and reliable regional information is not available.

The open character of the region aggravates the lack of information. While relations with the exterior represent only a small field of action for all the states of Europe, for all the regions of Europe exterior relations are extremely important. The region exports and imports a greater proportion of products and services than the national economy as a whole. The lack of frontiers means not only that interregional currents are stronger but also that many of them are not registered.

If regions are more open systems their growth has greater probabilities of causing imbalances. The liberalization of the interchanges of goods, services and capital and the free circulation of workers caused by the processes of European integration can worsen these problems of imbalances still more, if these liberalizing measures are not accompanied by common progressive policies between regions. The supranational organisms such as the European Community Organizations (E.E.C., EURATOM and the C.E.C.A.) and the COMECON, share this interest in regional problems. The statistical information which these institutions deal with and analyze is often concerned with the regional impact of the phenomenon of integration, and with the policies of development and plans for the restructuring of the regions and of co-ordination between states. But despite the interest of the Community institutions in the subject of the regions their influence and weight at this very level are limited.

## II.2. The consideration of geographical space. Problems in the definition of the region.

Unlike studies in geography which are centered on the consideration of space, in economics the concept of space has often been ignored or not taken sufficiently into account.

Space as defined by the economists often seems to the geographer to respond to an abstract notion. The economist is interested in the study of certain variations which, in themselves, do not form part of the space under consideration. In the geographical approach events which occur in the same space are primordially those taken into account, while in economic analyses space is simply an element brought to bear in the study of other phenomena.

The geographers were the first to study regions. At first these studies consisted of descriptions of aspects of their natural environment, of the activities carried on in them and of the man-made environment, in the framework of a space defined a priori by natural or historical criteria. They did not go any deeper, either in the search for, or in the discussion of criteria of regional division.

The geographers, then, made possible a detailed knowledge of the regions which they studied in monographs; but regional geography found itself without means when confronted by more general problems. The term region was indistinctly used with different meanings and content according to authors and contexts. However, it was generally understood as an area in which certain common characteristics were seen. In some cases through simple extension this was converted into an adequate unit for certain administrative aspects. For example: regional plans, regional functions-teaching, health, judicial, electoral.

For a long time the geographers tried to define the region by what it contained. Within geographical limits this content presented itself and was defined as the homogeneity of the landscape.

Even today, in certain zones the conditions of the physical environment which are those that determine the landscape, can in consequence, define the region -the natural region. A range of topographical, climatic and bio-geographical factors allow the definition of a homogeneous area from the point of view of natural conditions.

On the other hand, in other zones and according to a different approach in geography, it is the organization and activity of the community and its effect on the environment (the manner in which the agricultural areas are divided as a function of the types of land owning, the different kinds of crops, the organization of work...; in other words the forms which development has taken in the rural or urban environment) which is the principal factor giving unity to the "landscape". This is also a criteria for regional definition based on homogeneity, but not on natural physical or geographical peculiarities, rather in the specific historical process. For example, if we consider economic activity in its most general aspect of agricultural or industrial activity as a shaper of the landscape, we can therefore refer to agricultural and industrialized regions.

Defining spatial units in terms of themselves, of the differences between them or of their content, carries two possible risks: that of making abusive and inoperative generalizations, or, on the other

hand, dividing space excessively through making the criteria of homogeneity by which the region should be defined, too narrow.

In those zones in which certain levels of population density and diversification of economic activity have been reached, and which therefore have a more complex social organization, the criteria of homogeneity loses much of its significance and explicative importance. It is not sufficiently explanatory of the juxtaposition and disparity of the activities and relations which are observed. We are not speaking in principle of a homogeneous region, rather of a region which is cohesive in its disparity.

The division of space in function of deliberately chosen diverse criteria leads then to divisions which are necessarily disparate among themselves. The different regions can even end up overlapping one another. This logical contradiction has led to the search for a more satisfactory territorial division, based on more global criteria: those related to the organization of the services necessary for economic, social and political life, their implantation and their users. Regional science therefore created the notion of the organic region.

This new concept of the region refers to an organized area, united organically and polarized. It is not directly opposed to the definition of the homogeneous area, but rather is situated at a different level of analysis, one which contains different types of realities and problems. The criteria of polarization evaluates the phenomena of interrelations within a region, those of commerce, market areas, population nuclei, the communications network etc., in as much as they represent bonds of union of differentiated areas. The great population nuclei create around themselves a general sphere of mutual influence and thus can constitute the vital centre of a region, and its cohesive element. The following are relevant data for the definition of organic regions: movements of persons, goods, money and information. The region becomes then, the area of influence of a capital or an urban network, drawing life from and giving life to the city which it surrounds. The analysis of regional structures includes studies of urban growth, the systems of cities, problems



and questions relating to industrial location, transports, tendencies towards concentration or agglomeration. New formulas are developed like those of external economies and diseconomies, while environmental problems raise themselves (the ceiling reached by the economies of agglomeration...). In the context of such problems the debate on regional delimitations takes on secondary importance.

It is not possible to find a single, closed criteria for regional delimitation, and this has, then, various forms and profiles, according to the point of view involved, the level of development of the area in question and the state and evolution of the disciplines undertaking the regional analysis.

The geographers, pioneers of regional studies, know today that the region does not have a petrified, closed character. They show an increasing interest in structures which are at the same time both the skeleton and the instruments of regional development. Without interchanges, without flows of any kind, geographical space finds itself without any regional structure.

In the measure that the region continues to convert itself from an object of study into a framework for political and economic action, intervention and participation, space will be investigated by economists. These will be induced towards making increasingly precise analyses of the regions while the geographers, as was noted above, will pay greater attention to regional dynamics, rather than to tracing out the limits of the region. It would seem that the two ideas of the region are evolving towards each other and that this is opening the way towards greater cooperation.

The delay of the economists in considering problems of regional growth explains the backward state of economics in understanding the processes of imbalance in regional growth. Interpretations have been made for example of the phenomenon of the polarization of development, recognising as causes and explicatory elements, industrial interdependence, economies of scale, external economies, the technical or economic indivisibility of certain productive activities, and the different distribution of the quantity and quality of productive factors. But the role played by each of these elements in the

process of industrial polarization is not known. In order to find out we need to design statistical indicators which will allow us to confront these interpretations with the reality of particular cases.

With respect to the term or concept of region, two groups of definitions have been elaborated.

The first are those that identify the region as a whole by only concrete aspects of it. There are two causes leading to this type of definition, on the one hand the application of simple or partial criteria in the definition of regional areas, and on the other, the fact of carrying out a regional approach within the discipline to which the author of the definition is trained without taking into account the views of other disciplines. The interdisciplinarity which studies on the regional theme have to adopt, is another reason explaining the prolixity and confusion to be found in the use of the concept of the region. The region is not the same for the geographer as it is for the biologist, nor for the economist, the sociologist, or the administrator, although in some cases they can be in agreement. Moreover clarifying what each of them means by the region, is not of the same importance to all of them, nor do they all feel the same need to do so. The aims of each of these sciences are different and their methodological development and techniques distinct.

The other group of definitions are sufficiently general for use in any kind of regional definition. Their possibilities of being operative in practice and their usefulness when applied to scientific work are however almost nil. They are abstract definitions in vague and general terms, and therefore of only limited applicability in practice, their very generality losing them the practical effectiveness which every scientific instrument must possess.

At the edge of this second group of definitions is found that of the dictionary: "Region: portion of territory defined by special ethnical, productive, geographical, administrative, etc., circumstances". The vagueness admitted in its use is very wide.

Accepting the inexistence of any single definition of the region, need not lead us to affirm that there do not exist definitions of greater importance and utility than others and that the identity of some regions does not show itself in anything but the criteria and problems which we can pose for their definition. There are regional divisions which respond to more general criteria and are therefore of greater importance and applicability than others, and there also exists another type of regions with a high degree of differentiation, which appear as regions based in the most diverse criteria, with different problems and seen from the viewpoint of different scientific perspectives.

If one approaches, as in this case, a regional study taking in a number of states with different traditions and administrative structures, one must avoid finding similarities without previous study. The connotations of the term region are not the same in a federal state as in another with a long centralist tradition, because the regional reality and protagonism will be different in both cases.

It is relevant and of interest for this project to respect to the maximum the multiple sub-state divisions and to detail their meanings and contents.

### II.3. Objectives of the project

The lack of statistical information and regional documentation which has been observed is a difficulty and an important limitation for the development of regional studies or analyses taking in a regional perspective.

With respect to the regionalized information which exists on the countries of the E.E.C., only the Statistical Office of the E.E.C. systematically publishes data about the regions of the Community. The documentation which this Office handles refers to data of intra-Community trade and to the elaboration of policies for regional development and is insufficient for wider objectives. However the basic statistics of the European states give information on their respective regions, although this is not compiled and diffused at European level. The project of the I.A.R.U.S., a filial of the I.S.I. to create a bank of European regional data responds to this need and

the possibilities, offered by the existing data.

The realization of this project by an organization of international character makes it possible to dispose of information which would be of difficult access without contact with persons linked directly with the statistiscal organizations of their respective countries.

One of the additional and necessary by-products of the project for realizing a data base is the compiling and ordering of that disseminated and disperse material and documentation on the regions of Europe, which is considered necessary for the interpretation of the information collected.

The concrete study of the demand for regionalized information and the availability and collection of data will give an idea of the dimension of the data bank and its possible outputs and results, as much in form as in content.

Little advance has been made in overcoming the difficulties inherent in carrying out regional accounting. The models of national accounting (of the state) cannot be transplanted to the regional ambit. The lack of frontiers, and therefore of registers, among other problems, obliges the statistician to find other ways of apprehending the movements of population, goods, capital and services between the region and the exterior. It is necessary to use specific enquiry surveys, and go on to make estimates in order to be able to dispose of sets of basic information. Thus the availability of information on the economic conjuncture, industrial inter-relations, etc., is still unsatisfactory. Among the objectives of the project are those of the collection of statistical and referral data about the multiple studies and researches carried out in the area of socio-economic information, disaggregated on a regional basis.

Another tangential objective of the project, which is at the same time a phase in its realization, is that of identifying the different regional divisions of the European states, and contrasting the qualitative and quantitative differences in the information offered.

The information ought, as far as possible, to be compiled for territorial units which later permit aggregation, according to different criteria, into macro-regional units. The debate on the regional delimitations cannot be mixed with nor confused with the elaboration of the data base. On the contrary, this is a discussion which it is hoped to resolve by offering basic information on the European regions.

### III. TECHNOLOGICAL AND METHODOLOGICAL ASPECTS OF THE DATA BASE

#### III.1. The treatment of space. Selection of the basis spatial unit of information of the data base.

It could seem at first sight that we are in a closed circle: the prior need of fixing the regions in order to elaborate regional statistics and the need to dispose of these latter in order to determine the regions. Evidently the selection of the geographical boundaries of the areas in which information is going to be collected is an unavoidable first step in this project, and no statistical work can be carried out until the above-mentioned selection has taken place.

The basic spatial unit studied (B.S.U.) in each country will be that area greater than the municipality but the smallest possible in order to dispose of varied statistical information.

The fixing of the said basic spatial units of study in all the European states is neither an easy nor a non-conflictive task. The information which is compiled on them must be evaluated, although the selection and determination of these B.S.U. does not suppose a refusal to compile and make machine-readable data which are considered to be of interest at regional level (the sum of the B.S.U.) or municipal level, and which can be added to the data file through adequate treatment and consideration.

After making explicit the criteria and elements to be taken into account in the selection of the B.S.U., we have carried out a first test and made a selection from all the European states. A first difficulty has been the multiplicity of divisions in the interior of

COUNTRY	B.S.U.	Average Surface Area of the B.S.U. (Km <sup>2</sup> )	Average Population of the B.S.U.
Albania (1973)	26 districts	1105.7	88.338
Austria (1977)	9 länder	9317.	835.366
Belgium (1975)	9 provinces	3393.4	1,092.478
Bulgaria (1975)	28 districts	3961.1	306.946
Czechoslovakia (1977)	14 provinces	9134.1	1,069.556
Denmark (1976)	17 Amter	2533.8	297.959
Federal Republic of Germany (1976)	35 Regierungsbezircke	7089.8	1,699.742
Finland (1975)	12 lääni	28086.	393.374
France (1975)	96 departements	5666.7	548.497
German Democratic Republic (1973)	12 districts	8066.8	1,021.916
Great Britain (1976)	66 counties	3483.4	824.083
Greece (1971)	52 nomoi	2538.3	168.627
Hungary (1976)	25 counties	3721.3	425.012
Iceland (1975)	7 Kjöödaemi	14689.8	31.290
Ireland (1971)	26 counties	2649.6	114.548
Italy (1977)	95 provinces	3171.2	595.803
Liechtenstein (1976)	1	159.5	24.169
Luxembourg (1970)	12 cantons	215.5	28.320
Malta (1967)	6 regions	52.6	52.369
Monaco (1968)	1	1.8	23.035
Netherlands (1977)	13 provinces	2600.8	985.730
Northern Ireland (1976)	26 districts	543.1	59.157
Norway (1977)	19 Fylker	17046.6	212.379
Poland (1976)	49 voivodati	6381.2	704.651
Portugal (1975)	22 districts	4165.0	429.491
Rumania (1977)	40 districts	5937.5	538.985
Spain (1976)	50 provinces	10095.	722.281
Sweden (1977)	24 län	17150.6	343.174
Switzerland (1977)	26 cantons	1588.2	242.215

U.S.S.R.	166 provinces, territories and autonomous republics.	134.186.1	1553686
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Total 818 B.S.U. without the U.S.S.R.

Total 984 B.S.U. including the U.S.S.R.

each State. Divisions with a great diversity of objectives: for the collection of statistical information, for the administration of the departments of the state, for the organization of multiple services related to commercial facilities, social life, professional affairs, military matters and civil defence, etc. All these independent divisions vary according to their aims and can overlap one another. Some are based in existing political divisions, others are determined by the simple quantity of business which an office of the state can conveniently deal with, and others depend on the distribution of one or more activities, on problems of access and on the distribution of the population. A second difficulty is the diversity of territorial divisions which exist in the European states.

Despite the problems which the design of the project and the determination and elaboration of a list of basic spatial units of all Europe give rise to, it has been considered useful to append it to this project for two reasons: to give the dimensions of the basic geographical units of the file, and to offer a first list to the members and correspondents of I.A.R.U.S. The correspondents will be sent, along with this list of the B.S.U. of Europe, a series of questions to enable us to verify, contrast and correct the B.S.U. of the list by the statistical information which in the opinion of the correspondents can be compiled, taking into account its importance and usefulness for constructing and later reforming the historical, administrative etc. regions.

### III.2. The information system: functions

As was stated above (II.3.), the proposed objectives do not only consist of the collection, validation and storage of information. The product of this work is composed, on the one hand of a body of information, and on the other of certain processes or treatment of that information. These functions or system have as objective:

- facilitating the work of collection and storage,
- permitting a process of high quality validation,
- allowing the exploitation of the stored information, at least that which is most important and general,
- aiding knowledge and use of the stored information.



Without doubt the central element, and that which has led to the development of the project (whose starting point is precisely the lack of information), in this information system is the information itself, along with the treatment and processes which accompany it and help in its knowledge, use and verification of its quality, etc. Therefore the subsystems into which the global system can be divided must necessarily refer to the information collected in its different types.

The types of information considered are basically:

- quantitative or codifiable information
- cartographical information
- documental information on the B.S.U., their situation and the subjects covered.

The first two types are the basic element in this study. On the one hand the statistical information (see IV) will cover the deficit which exists at present. On the other, the geographical information (see III.5.) will allow spatial research, which is fundamental in these sort of problems. For example the realization of thematic, gravitational or non-linear maps; the identification of the different existing semi-functions, either by subject or with the aid of the different views of specialists (see III.3.). The graphical representation of any spatial unit relative to the research is a decisive aid for the knowledge and interpretation of regional reality, and therefore information on the localization and limits of any geographical or zonal entity is included as a fundamental feature in this system.

The facilities offered by the computer for the treatment of these two types of information advise their automatization. Moreover the additional advantages of an integrated design for the treatment of both types of information should be considered. For this reason, the treatments relating to statistical information and geographical or locational information (the definition of spatial units by the coordinates of their perimeters) have been grouped together in a single subsystem (see III.4.). Such treatments are completely automated.

The other two types of information facilitates the approach to and use of the system. For this reason they are connected with or depend on

the surroundings of the system, that is to say the users, their characteristics and objectives.

The wide range of persons who come to use the system will differ in their more or less profound knowledge of regional themes, their a priori postures in front of the theme and its relevant characteristics and in the degree of accuracy they require, ranging from a simple general consultation to the intensive use of information for research in depth. It is also necessary in this last case for the user to be introduced to the system, to become familiar with it, to know the definitions and the working hypotheses with which it has been constituted. In fact it is to be hoped that every user, whatever the level of detail at which he wishes to work, in his first contact with the system should consult a referral file where he will find the necessary general information on the possibilities and limits of the system, as well as the concrete definitions used for each theme, or spatial unit. This referral file will also allow a global vision or description of the "regional situation" in each State. (See III.3.). The fundamental objective of this documentation is to situate the user in the proper context of the system, and to allow him a knowledge of the institutional and organizational framework and significance of the statistical and geographical information which he wishes to use. It is not a question, then, of a manual for the use of the system, rather of a group of basic definitions which at the same time allow the identification of the criteria behind the collection of the information, and the compatibilization of information relating to the diverse situations of the different States (see III.3.). The automatization of this documental file and of its consultation demands an important formalization of its contents. In any case it is a question of a system for the processing of texts and in the first stage its automatization would not seem to be absolutely indispensable.

Finally the utility of including the definitions of the themes and B.S.U. in the automated system is also considered. These would be succinct definitions which would aid the user in the elaboration of the information without requiring him to go outside the information

system. This type of information also includes the lists of the different areas, and, when necessary, the differences or limits of those which do not coincide. All this information is included in the Dictionaries of the automated system (See III.4.).

In summary, it is foreseen that there will be an interphase, or first level in the use of the statistical and geographical information. This documental referral file is perhaps the most atypical feature in this information system. The need for it appears as a function of the difficulties and differences of viewpoint which the regional theme and its related information naturally bring with them.

### III.3. The European regional division referral file.

The presupposition and aim of this project is that without ample and adequate information which covers the diverse aspects making up the regional reality, a discussion on the content, reason and significance of the regional boundaries cannot be undertaken. The basic spatial units for the collection of information should allow, once sufficient information is available, the constitution of European regions and macro-regions through the aggregation of these.

If the region has to be object of study and definition from many distinct points of view -economic and social structure, culture, history, language, political expression, etc.,- significative and varied information in these respects must be collected in the referral file, which will allow the recomposition of zonings or historical and cultural regions from the B.S.U.

The territorial divisions of the European states, departments or provinces, districts, cantons, municipalities or "communes", etc., do not only have a geographical or ethnical, cultural or economic origin. What characterizes them primarily -and this point is crucial- is that they are public entities which dispose of some measure of political power or administrative competence, of a capacity for decision in matters concerning the interests of the inhabitants of their territory. However, taking only Western Europe for example, how can we compare from an institutional point of view, the Swiss canton with the Austrian province and with the German land, or with

each of the four parts of the United Kingdom, not to mention their comparison with the Italian regions. In some cases it is a matter of historical regions with particular sociological characteristics, in others it is a question of former provinces of medieval origin which have survived in the administrative framework, or of former States integrated into a federal structure. The peculiarities and specificity of the administrative and political structures and of their territorial organization is in itself a centre of interest for the project and a basic documental file on this question would be an instrument of great utility for the realization and use of the regional data bank which we propose.

An additional file, with a simple and easily managed dossier for each state should document and add information which it is difficult to standardize on the territorial divisions used in the statistical and geographical databank.

This referral file will contain varied documentation referring to the diverse information on the spatial units studied, or simply detected, in each country.

In the first place there will be a chapter dedicated to information on the B.S.U. in each country, which have already been defined as the Basic Spatial Units Studied in each country.

A second part of the file will contain varied information on those larger spatial units formed from the sum of various B.S.U. These Macro Spatial Units Studied are known as M.S.U. Like the B.S.U., they usually coincide with the current administrative units in each country, for which diverse statistical information is given.

In the third place we have thought it interesting to give information referring to diverse aspects (historical, religious, etc.,) which sometimes give rise to other spatial divisions which are different from those mentioned above, such as the division in religious administration areas (bishopsrics, etc.) and sometimes do not give rise to any concrete division, but only characterize an area, such as the area where language X dominates, for example.

This referral file will be organized by states, thereby facilitating its consultation, and giving an introductory information base to the

person studying a country, region, etc., which will aid him to situate himself in relation to the reality he wishes to study.

A- Information on the Basic Spatial Unit Studied (B.S.U.)

1. Introduction.

The object of this point is the presentation of the B.S.U. studied in each country.

1.1. Name. Here it is only necessary to state the name which the BSU takes in each country (province, department, etc.).

1.2. Composition. This B.S.U. will almost certainly be formed by the aggregation of other units which are still smaller, which we do not study, and which coincide on many occasions with the municipalities. It is necessary to explain this.

1.3. Historical duration. The B.S.U., as the administrative unit which it tends to be, will have been in vigour for different periods of time in each country studied. Here it is necessary to state the date from which it has been in vigour as an administrative unit.

2. Formal study.

Here it is wished to present the most formal aspects of the B.S.U. in each of the countries studied. It is hoped to give the basic elements for a knowledge of the B.S.U. of each country, and at the same time, supply the necessary elements for a later comparison of the B.S.U. of each country.

2.1. Surface area. It is necessary to give all the data referring to the surface area of the B.S.U. in each country. Perhaps a good procedure would be: surface area of the biggest B.S.U., surface area of the smallest B.S.U., average surface area and a typification ( $x$  B.S.U. of more than  $x$  km.<sup>2</sup>,  $x$  B.S.U. between  $x$  and  $x$  km.<sup>2</sup>, etc.)

2.2. Population. Here all the data which allow the study of the population of all the B.S.U. of a country must be given: total population of the most populated B.S.U., total population of the least populated B.S.U., average total population, and a typification like that of the previous section (2.1.).

2.3. Composition. It has already been stated on various occasions that the B.S.U. are formed from the aggregation of smaller units which we do not study, and which often coincide with the municipalities. In this point it would be interesting to explain this process: the total number of sub-units, which B.S.U. has the greatest number of sub-units, which B.S.U. has least, what is the average, and a typification like that already mentioned in section 2.1.

3. Political administrative content of the B.S.U.

In this point the functions deriving from administration and political life which each B.S.U. in each country possesses should be explained. Therefore, and in order to permit a later comparison, we suggest the explanation of the functions of each B.S.U. should be made according to the following aspects (or to others which can be added according to the peculiarities of the country under study).

3.1. Political. Political institutions of the B.S.U. their concrete powers, public organisms, persons representing political power within the B.S.U., relations with the central power, etc.

3.2. Administrative. Administrative institutions, their concrete powers, administrative organisms, persons representing administrative power within the B.S.U., relations with the central administration, etc.

3.3. Electoral. Relationship of the B.S.U. to the basic electoral unit in the country studied, organisms, their responsibilities, relation to the electoral system of the country, etc.

3.4. Planning. The B.S.U. as a unit for regional, economic planning, etc. Relationship with other areas of planning in the country, competent organisms, etc.

B- Information on the Macro-spatial unit studied (M.S.U.)

1. Introduction.

The object of this point is the presentation of the M.S.U. studied in each country.

1.1. Name.

1.2. Composition.

1.3. Historical duration.

2. Formal study.

In this point it is intended to present the most formal aspects of the M.S.U. studied in each country. It is also hoped to give the basic elements for a knowledge of the M.S.U. of each country along with the necessary elements to allow later comparisons.

2.1. Surface area.

2.2. Population.

2.3. Composition. (Here this will be formed by the aggregation of B.S.U.)

3. Politico-administrative content of the M.S.U.

This point will explain the functions relating to administration and political life which the M.S.U.

of each country possess. In order to permit later comparisons we suggest that the functions of each M.S.U. be detailed in the following aspects (others may be added according to the peculiarities of the country studied).

- 3.1. Political.
- 3.2. Administrative.
- 3.3. Electoral.
- 3.4. Planning.

C- Information on other divisions.

In this section all the information referring to those divisions which are produced by the spatial localization of diverse aspects of human life, and which have not been classified for the moment, will be collected. All information of this type will be collected, independently of whether the new areas so configured coincide or not with the B.S.U., which is the smallest unit for which we have diverse statistical information.

The criteria which will be used for grouping these other spatial units together will be seen in what follows. We would like to state that in order to facilitate the use of this documental referral file, we will divide all the divisions studied above into two main groups, according to whether or not they can be reconstructed from the B.S.U. of their corresponding countries.

1. Spatial units which can be reconstructed from the B.S.U.

1.1. Divisions which have existed during history.

For each division in existence at some point in history the following data must be given.

- 1.1.1. Name.
- 1.1.2. Composition. from what spatial units was it formed.
- 1.1.3. Historical continuity. dates between which the division under study was in vigour.
- 1.1.4. Real content. the real contents (political, administrative, economic...) of these spatial units when they were in vigour.

1.2. Divisions which are or have been demanded. Those divisions which have been demanded for different reasons (historical, cultural, political...) although they may never have entered in vigour should be included here. Such divisions give rise to different spatial units from those dealt with up to now. The following data should be given for each of them.

- 1.2.1. Name.
- 1.2.2. Composition. what area is demanded.
- 1.2.3. Real content demanded. the real contents of political, administrative and economic type, etc., which are demanded in these areas.
- 1.2.4. Subject and cause of the demand. persons and groups demanding that these divisions be put

into effect and for what reasons  
(political, historical, etc.)

1.3. Other divisions. We divide all the other divisions encountered into two groups according to whether or not they have a concrete administrative content.

1.3.1. Other divisions with a concrete administrative content. all those divisions with a concrete administrative function and which can be reconstituted from the B.S.U. are included in this group. The following data must be given for each of them:

1.3.1.1. Name.

1.3.1.2. Composition.

1.3.1.3. Real administrative content.

1.3.1.4. Public organisms.

1.3.2. Other divisions without a concrete administrative content. in this section information must be given on all the divisions created by all aspects of human life. language, culture, religion, etc., which obviously do not have a real administrative content. The following data must be given for each of these areas.

1.3.2.1. Name. Division or area in function of the phenomenon X.

1.3.2.2. Composition. What division of territory is created as a function of the spatial distribution of the phenomenon X under study.

1.3.2.3. Other aspects which could be of interest or could amplify the information: organisms which are studying phenomenon X, etc.

2. Spatial units which cannot be reconstituted from the B.S.U.

2.1. Divisions which have existed during history.

2.1.1. Name.

2.1.2. Composition.

2.1.3. Historical continuity.

2.1.4. Real content.

2.2. Divisions which are or have been demanded.

2.2.1. Name.

2.2.2. Composition.

2.2.3. Real content demanded.

2.2.4. Subject and cause of the demand.



2.3. Other divisions

2.3.1. Other divisions with a real administrative content.

2.3.1.1. Name.

2.3.1.2. Composition.

2.3.1.3. Real administrative content.

2.3.1.4. Public organisms.

2.3.2. Other divisions without a real administrative content.

2.3.2.1. Name.

2.3.2.2. Composition.

2.3.2.3. Other aspects.

III.4. Automated treatment of statistical and geographical information.

It is necessary to automatize information. In the first place it makes its treatment easier, since it is voluminous and diverse. In the second place it allows its storage, availability and use in diverse forms and at distinct spatial levels, thereby avoiding the sclerosis and loss of information caused by only having it available at one regional level. The manual handling of the volume of numerical information and cartographical coordinates would be a disproportionate task. Nor would it result economic to prepare (calculate and design the tables and their mapping) by hand the foreseeable volume of information for publication.

In order to facilitate the availability and accessibility of the information, it could be offered in recorded form on tape, or deposited in a "host" connected to the European Network (EURONET). In both cases the conditions of accessibility and availability of the information without restrictions for its use in all kinds of independent analyses would be met.

1 - Objectives of the information system.

This will be an information system which will serve for the creation of files containing geographical references and data of maximum quality. Because of this need for quality it has been decided that

the whole process for the reception of data should be automated (validation, reliability analysis, etc.), and not just the last phase of this process which will be strictly a change of format.

At the same time it should be possible to control the available information and that which still has to be collected in each of the geographical ambits of interest. In fact, the system should aid the control of the development of the information collection operation.

A more important requirement of the system is that it should permit great flexibility in the "objects" (variables, zones) which it deals with, since it will be normal for there to be small differences between the general model and the information which is in fact available. If this flexibility was not the case, and the system had very rigid categories, then some of the available information would have to be left out.

Finally the information system should give a certain auto-sufficiency to its final product. Since it is a collection of data whose clear purpose is to be "transported", that is to say put at the disposition of many different users in very different situations, it is necessary for it to also include information on its own content, and that this information should be inseparable from the proper content of the system.

In summary, then, we can identify the following four main objectives:

- the storage of information and geographical references of the highest quality.
- flexibility with the objects it has to manipulate.
- it must facilitate the control of the ongoing development of the information collection operation.
- autosufficiency of the product.

In order to finish concretizing these objectives it remains to outline the organization around the information system. The arrival of information and geographical references (zones) will be more or less erratic. Therefore the introduction of information and

references will be carried out one by one, and not on a massive scale. Once the information has been introduced its veracity and reliability compared with the rest of the information which is already stored, will be controlled. In a parallel way it will be necessary to contrast the geographical references to make sure that they are correct. All this will be carried out by a team of persons who will, at the same time, check on the exhaustiveness of the information received or collected.

Taking into account this organization around the information systems, the functions which the system will allow are:

- The individualized actualization of information (for each B.S.U.) in function of the real answers and not just the original pattern.
- The storage of precise geographical references referring to the B.S.U. and the zones which are discovered in the course of the work.
- Answering questions about the situation in which each B.S.U. finds itself with respect to each piece of information or variable (reception, control, acceptance, rejection, substitution, waiting, etc.).
- Storing the labels for each piece of information or variable, as well as the definitions and observations relating to each situation or piece of information.
- Permitting the reliability analysis of the information, as well as the following analyses of content:
  - Thematic maps
  - calculations using the base information
  - regression analysis
  - factorial analysis
  - graphical representations of statistics
  - tabulations
- The consultation of the stored information through the following inputs:

- a B.S.U.
- a zone or region made up of B.S.U.
- a variable

and answer according to the content or whether it belongs to different zones.

The greater part of these functions must be realized in real time, due to the relatively important gain in reliability. Only the coherence tests must be carried out in batch, due to the long working time necessary, and also because the time allowed for answer permits this.

## 2. Information structure.

To satisfy the above mentioned needs, a pre design logic of the system desired must now be carried out. In the first place it is worth mentioning that the logic which will determine the system is that proper to graphic or spatial systems, that is to say those that manage spatialized information. It is not those that manage forms geometrically, rather one which manages information referring to spatial forms.

The basic information in the system will be available in three main data bases or files. (It is not the moment at present to discuss the physical structure of these and therefore we refer to them generically as files . These are:

- Dictionaries
- Information file
- Spatial reference file

2.1. Dictionaries. The dictionaries contain the information necessary to establish,

- knowledge of the information contained in the system.
- knowledge of the situation of each variable, each B.S.U. and each zone.
- the necessary lists for the functioning of the system, such as the B.S.U. which composes each of the greater aggregations or zonifications, the physical pointers necessary to find certain information, etc.

In fact the dictionaries carry out the task, in the first place, of contact with the exterior, undertaking the whole task of translating between the internal language (with its more or less esoteric codes in non-semantic form and the external language. In this way it is believed that it will facilitate the use of the same system in the ambit of different spoken languages such as English, French, Catalan, etc.

Secondly the dictionaries allow the logical relations to be made between the information (data) and the geographical references, such as the content of variable referring to zone X and the proper coordinates of the perimetre of this zone, the crosslinkings between different zonifications, etc.

Concretely the dictionaries which are necessary are:

a) Codifier-decodifier : This carries out the task of facilitating communications with the exterior, and therefore contains all the necessary information to allow it to give headings (of variables and geographical objects), to understand the informative contents (definitions of the variables), and to relate itself to the system (short and long nomenclators).

The basic unit is the variable and the geographical object. The information referring to each internal code is:

- short label (key to the secondary index)
- long label (for publication)
- definition1
- definition2
- source
- function of aggregation
- date of the information
- values between which it should fall

It can be seen that the variables are not differentiated from the geographical objects. The necessity of their definition and publication is the same. Apart from the "short label", all the other information consists of texts. The system is transparent as regards its content, that is to say that it manages simple information but does not analyze it.

b) The monitoring of the collection operations. The task of this dictionary is to reflect the state in which the collection of information finds itself, or put another way, the availability of information and geographical information.

The basic unit is the variable and the secondary index is the geographical object.

The information referring to each variable code is:

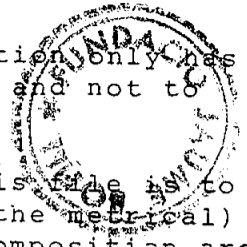
- code of the geographic object
- code of its situation
- date

This trilogy is repeated as many times as the geographical objects offer information on the variable.

The situation codes are:

- not received
- in connection
- correct
- awaiting new answer

It should be noted that this information only has meaning when referring to the B.S.U. and not to the composite zones.



c) Spatial relations. The task of this file is to allow the topographical (though not the metrical) management of space: inclusion and composition are the relations which are defined.

The basic unit is the B.S.U. and the secondary index is the zone.

The information referring to each B.S.U. is:

- zone
- zoning

This pair are repeated as many times as zonings have been introduced.

With these three dictionaries it is logically possible to retrieve all the information necessary to the system.

2.2. Information file. This file contains the collected variables. The basic unit is the geographical object and the secondary index, the variable. The parameters which define the subject of the information which interests us here are those of space and time. Therefore each real unit will be a space or geographical object and a date to which the information refers.

To each of these units will be referred as many pairs as necessary:

- code of the variable
- value of the variable

The structure of the code of geographical objects is as follows:

- B.S.U.

- 1 0
- 2-4 State
- 5-7 Code of the B.S.U. within the state.

- zone

- 1 1-7
- 2 Theme of zoning
- 3-4 Code of zoning within theme
- 5-7 Code of the zone within the zoning.

- lineal object

- 1 8
- 2 Type of line
- 3-4 Code of the line within the type
- 5-7 0

- point

- 1 9
- 2 Type of point
- 3-4 Code of the point within the type
- 5-7 0

On the other hand the structure of the code of variables is hierarchic.

2.3. Spatial reference file. In this file are contained the metric spatial references which define each geographic object - the B.S.U., and the zones are associated with the coordinates of their perimetres; the lines with the ordered coordinates and the points with the pair of coordinates.

Owing to the use of these references, it does not seem to be necessary to store only the points and afterwards compose the more complex geometrical figures. The redundancy of information allows an easier treatment, in relation to the volume which is contemplated.

### 3. Subsystems.

The information structure which has been established easily allows the realization of the functions proposed for the system. In order to facilitate the comprehension of these on the one hand, and on the other to ensure the logical analysis, it would be useful to group them in subsystems. Each of these carries out a fundamental task, and to some extent is comprehensible in itself.

3.1. Updating of dictionaries. It is necessary to be able to carry out this actualization on line. When a questionnaire arrives, the Codifier-Decodifier has to be prepared before introducing information referring to the B.S.U. and variables. In one transaction to possible new variables are indicated, always with the labels and definitions of the B.S.U. and zonings.

Once the information file and the Spatial reference file have been updated, the Situation Dictionary and the Dictionary of Spatial relations must be brought up to date. The former demands carrying out validation tests and reliability analysis.

In this subsystem there can be no logical validations.

3.2. Updating of files. We have to differentiate between two different parts in relation to the function of the file to be brought up to date. With respect to that of spatial references the possibility of carrying out batch actualizations must be considered as a possibility, using the output of a digitalizer, or through introducing coordinates which have been calculated manually and must therefore be introduced manually, in an on line transaction.

The validations to be carried out in this part of this subsystem are of two types. On the one hand geometrical, in order that the polygons are closed. (The superimposition of the parts must necessarily be controlled by hand). On the other hand, structural within the system, that is to say the existence of the necessary elements in the Codifier-Decodifier Dictionary.

The second part refers to the updating of the Information File. The philosophy of the transaction is analogous to the structure of the information: B.S.U.-date, variable code or label, value.

The transaction which actualizes this information must first have undergone a reliability analysis in coherence with the Codifier Dictionary, as well as a test of the values between which it should fall (the comparison table is also to be found in this dictionary).

3.3. Outputs. This subsystem is necessary in order to be able to evaluate the stored information and in this way be able to control it, and also to make possible a first study. It is divided into two parts: consultations in real time, or individual consultations, and tasks in batch mode.

Among the former are found consultations on each file and dictionary, using the direct and secondary access keys. For example, in the case of the information file

- Entry : a code of B.S.U.-date  
Output: all the available pairs  
variable code  
value
- Entry : a variable code  
Output: all the available pairs  
B.S.U.- date code  
value

Another type of consultations are those that allow the comparison of information: Two kinds of parameters are in play here. On the one hand the B.S.U., groups of B.S.U. or zones for which it is hoped to make comparisons, and on the other the variable or group of variables which make up the body of the comparison. These parameters are defined in subsystems 3.4, Selection and 3.5, Aggregation.

The outputs which can be made in batch can be classified as:

- list
- calculations and statistics
- maps

The reason for using batch processes is found in making a balanced choice between the quality of the output, the cost in execution time and the needs of the method of working.

In all three types of output there has to be a previous definition of the universe. This is carried out through the above mentioned parameters of selection and aggregation.

The different lists which have to be made refer to the contents of the different files separately, to the cross-linking of these in order that any B.S.U. may be exhaustively described (variables, coordinates, definitions, situation, spatial relations, and finally, a third type which will not only be an internal working instrument but rather the exterior presentation of the system in printed form. The contents of this third type do not differ from the others, except in their width, elegance and ease of reading for those who are not initiated in, or do not know well, the system. That is to say that, while in the previous lists the design criteria is the usefulness and compactness of the information, in the latter type the criteria are the transparency and ease of reading for all the different possible users.



The calculations and statistical analyses which have to be carried out in this subsystem are directed to the realization, as has been stated earlier, of previous studies and reliability analyses. The demands must be carried out parametrically and a sophisticated language would not seem to be necessary, since the users of the subsystem will have a good knowledge of it.

The calculations are carried out between variables referring to the same geographical object. The list could include:

- add, subtract, multiply and divide between variables, and between variables and constants.
- logarithmize.
- extract maximums and minimums.
- transform rata into "rankings".
- codify continuous variables.

The statistics which must be made are:

- unidimensional variable numerical descriptions
- unidimensional variable graphical descriptions
- metrical and parametrical correlations, and spatial autocorrelations.
- tabulations
- regression analyses
- factorial analyses

With regard to maps it must be said that, as in the previous case, the universe to be drawn is defined by the parameters of selection and aggregation. The type of maps which seem to be necessary can be made by traditional printing methods, either using characters or needles since it is a question of drawing tonalities rather than limits. The maps which it is expected will have to be made are, firstly, thematic, giving to each delimited geographical object the value of a simple or composed variable. Secondly, coropletic, showing the interpolations between a few points, for a simple or composed variable, in a given space.

The maps must reflect the labels and lineal objects and points.

3.4. Selection. The parameters of selection in a universe have two sides: the elements which make them up and the information which describes these elements.

With regard to the information, the following two functions must be taken into account:

- identification by code or short label of the original variables,  
and
- creation of new variables using the calculation functions described in 3.3.

With respect to geographical elements or objects the only function which is foreseen is that of identification by code or short label. "Window selection" consisting in defining a universe by selecting all the objects included in a rectangle of which the coordinates of a diagonal are given, is therefore discounted. The reason for this elimination is its small utility in a system like this in which the basic units are few and with little variation in their spatial content (there do not exist geometric objects, rather polygons or zonal spaces).

The selection of geographical objects is facilitated to the maximum. The parameters for selection could be along the lines of:

- all and every one of the B.S.U. which form the required area.
- a zone or group of zones, defining the level of the elements included which it is wished to draw.
- a composition of B.S.U. and zones.

At a general level it must be stated that this selection subsystem will carry out both the extraction of information and geographical references, thereby preparing working files which will be used for output and for input functions. All these functions will allow the same structure of input, which coincides with the structure of selection output. In this way the output functions are converted into reentry functions, that is to say using the same selection (normally a long task), all kinds of output functions may be carried out. Finally it must be said that dictionaries will always be available and that working subsets will not be made.

3.5. Aggregation. The function of this subsystem is the elaboration of information referring to zones from the information referring to B.S.U.

The only parameter which is necessary is the code of the zone which it is hoped to aggregate. Using the Codifier-decodifier Dictionary the variables of each B.S.U. are known, as well as the aggregation function to be applied. Through the Dictionary of spatial relations, the list of B.S.U. which make up the zone can be found out.

The adequate function of aggregation must be defined for each variable since it is not the same at spatial level, for example, if one is dealing with income per capita, or with a mortality rate, or with the number of inhabitants.

Once the calculation of the information referring to the zone has been carried out it is introduced into the information file. The coordinates which compose the perimetre of the zone (based on those of the B.S.U.) must also be calculated and introduced in the reference file.

### III.5. Geographical references and mapping.

The possibility of representing cartographically the stored statistical data requires, in the first place, the digitalization of the boundaries which delimit each B.S.U., in order to make it possible to easily obtain their graphical representation through the output terminals.

This raises, however, the problem of choosing a system of projection which will allow the reader to see which is the geographical space represented and what are its characteristics.

The territorial extension of Europe will never allow it to be represented in its totality through straight projections -those in which the geometrical similarity between the real boundaries of the territory and its representation on the flat surface of the map, but which necessarily cause important differences of scale in the sectors furthest away from the automecoic lines.

In such a case, visual appreciation of the map -when it expresses statistical values corresponding to each B.S.U. through coropletics, will lead to great errors on quantitative estimates since the B.S.U. furthest from the basic axes of projection will be underrepresented.

Therefore, in the cartographic representation of large areas -and it need not be said, in those that cover the whole of Europe, we will have to do away with systems of straight projection and make use of a system of equivalent projection with which -although the B.S.U. furthest away from the automecoic lines will be deformed by the process of projection -equivalence of areas between the real extensions of territory and their graphic expression on the map will be maintained.

The frequency with which we find ourselves in front of cartographical representations of the world and continents in maps in which the countries situated at the extreme latitudes suffer deformations of projections means that no-one will be surprised by this fact.

However, the use of this system cannot be admitted for the representation of reduced areas of groups of B.S.U. situated at the extreme of deformation, since the image produced will not coincide with that which the user is accustomed to seeing of his own area,

which is one with boundaries similar to the real perimetres, obtained by a system of straight projection.

Thus we find ourselves with a double problem:

a) in some cases we have to count on the possibility of cartographical representations of large areas in which the B.S.U. maintain, among themselves and on the map, the same relationship of surface areas as exists between their real areas (and which, for technical reasons of the flat representation of the curved surface of the globe, is only possible with a system of equivalent projection which will deform the boundaries of the areas furthest from the automecoic lines).

b) in other cases we have to reckon with the possibility of cartographical representations of smaller areas, in which the B.S.U. are expressed on the map in the form of boundaries similar to the real territorial limits (an absolutely necessary variant for carrying out cartographical representations of spaces which are normal and known to users through their state maps); this variant will only be possible through the use of a system of straight projection, a procedure which is normally used in the cartographic representations of each country. The use of this system causes, however, a deformation of scale in the sectors furthest from the automecoic lines.

In order to cover these two possibilities, it will be necessary then, to digitalize the geographical coordinates of the territorial boundaries of the B.S.U., transforming them into two transferible values on coordinated axes X and Y in line with a double codification:

- a) that which will allow cartographical representations through a system of equivalent projection.
- b) that which will allow cartographical representation through a system of conformal projection.

It still remains to choose which concrete method of transformation to use for each of these two cases.

Among the multiple possibilities studied the following have been chosen:

- a) for the register of coordinates of equivalent projection, the Bonne Projection will be used, in which the graphical representation of the parallels is realized through equally spaced, automecoic,

concentric circles, and that of the meridians through constantly spaced curved lines, which are automecoic parallels.

b) for the register of coordinates of conformal projection, the UTM (Universal Transverse Mercator) which is increasing in acceptance in many European countries will be used.

The limitations imposed in each case must be fixed in accordance with the angular and scale deformations which one and the other can cause. In our case we have chosen as a basic projection for smaller areas, the UTM. The spatial limits for the application of the system will be:

- a) state limits
- b) representations of inter-state areas which can be included in a 750 km. diameter circle.

In all other cases the system of projection which should be used for cartographical representations will be that of Bonne.

#### IV. SELECTION OF THE CONTENT OF REGIONALIZED INFORMATION. SCOPE AND LIMITATIONS.

##### IV. 1. Regional statistical information. Basic indicators.

In some states -for example the case of Spain- resolving the problems of decentralization and devolution supposes, among other things, resolving the lacunae in the statistical information available -demographic, economic and social- and giving the greatest possible detail about the areas under the regional administrations. Regional statistics are today, in all the states of Europe, an indispensable political and administrative instrument, as well as a centre of interest and the subject of many studies. And they need to be developed autonomously.

The statistical system has as its aim the making available of adequate and coherent statistical information in the shortest time, information on social and economic structures, processes and attitudes, which is intelligible and of easy access. However this statistical

information must be understood in a wide sense as the collection of data and the knowledge of its reliability, documentation on the methods used in obtaining it, and analysis.

The data bank is constituted by regional social and economic indicators which measure magnitudes which are characteristic of economic and social structures and activities. These indicators permit the knowledge of isolated data about population, employment, living conditions, education, health, etc., and about production, trade, investment, etc.

However it is also necessary to be able to integrate the various indicators into a coherent whole which allows the description of the fundamental economic relations between economic agents to be described. This means that it is necessary to have a Regional Accounting which describes the intersectorial relations within the region, and between agents, as well as exchanges with the exterior.

Any system of regional accounts must include the principal indicators of economic activity. The elaboration of production accounts, of those relating to the activity of families and non-profit making enterprises, and those of the public administration allow the principal macroeconomic magnitudes to be quantified, and from these ratios can be deduced through their comparison with population and employment, such as income per capita, productivity, investment rates, and the coverage of the exterior transactions.

A European regional data base will have to contain information and documentation on the following subjects, for which we also specify the corresponding significant indicators:

1. Characteristics of the regional structure of the European States.
  - type and number of regional divisions
  - classification of the regional divisions
  - geographical coordinates of the boundaries and important centres.Possibilities of mapping.
2. Basic regional information referring to:

2.1. Geographical characteristics, in their physical aspects-geophysical, climatic, hydrologic.

- total surface area. Area of canals, lakes.
- area higher than 1,000 metres.
- length of the coastline.
- distance by road to the capital of the state.
- average temperature, humidity.
- rainfall and precipitation.

2.2. Regional wealth, specifying natural and energy resources - land, water, woods, minerals, etc.

- productive land area
  - . cultivated dryland or irrigated according to the types of cultivation.
  - . pastures
  - . woods
- hydrographic balance
  - . resources capacity of reservoirs  
volume of canals
  - . use
- subsoil. Estimated reserves.
  - . petrol
  - . coal
  - . iron
  - . other metals
  - . phosphates
- transportation infrastructure
  - . no of km. of roads, according to the  
no of roads.
  - . no of km. of local roads
    - main roads
    - motorways
  - . no of km. of the railway network
  - . no of km. of navigable canals and their width.
  - . no of km. of oleoducts.
  - . no of airports, possibilities of classification.
  - . no of ports, length of wharves.

2.3. Population

- total resident population, by sexes
- " " " " , by ages, or by age groups, classified at least in the following.
  - . population below 15 years of age
  - . population between 15 and 65 years of age
  - . population above 65 years of age
- nuptiality rate
- infant mortality rate

determinants of the evolution of the population.

- . birth rate and general mortality.
- . rate of natural growth of the population.
- . balance of immigration and emigration. Inter-regional migrations and emigration abroad.
- . migration within the region (changes in the municipality of residence).
- concentration of the population
  - . population density

- . distribution of the population according to the size of settlements.
- . no of nuclei or settlements according to their size.
- . surface area of the major cities.

2.4. Structure of the active population.

- total active population by sexes.
- rates of activity by sexes
- rates of activity by ages
- rates of occupation by sectors of activity
  - . primary. Absolute and relative values  
For certain regions, classified by fishing, agriculture, mining.
  - . secondary. If possible by different branches of activity.
  - . tertiary. Banks and insurance to be taken separately from public administration -central, regional and local-.
- rate of salaried employees in the active population.
- percentage of workers in enterprises of over 500 workers.
- classification of the population by professions.

2.5. Education.

- No of teachers in primary, secondary and university education.
- No of students in primary, secondary and university education.
- No of institutions of primary, secondary and university education.

2.6. Structure of production.

- Agriculture
  - No of agricultural exploitations
  - No of agricultural enterprises
  - Distribution of the agricultural exploitations according to their surface area.
  - Indicators of the grade of mechanization, no of tractors, combine harvesters, etc.
  - Volume of production, broken down by products or types of products.
- Industry
  - . no of establishments
  - . no of enterprises
  - . distribution of establishments according to the number of workers employed.
  - . the most important great corporation.  
Specifying the type of product they manufacture.
- Services
- Commerce
  - . types and distribution of commercial establishments.



- .. self-service
- .. supermarkets
- .. hypermarkets
- .. department stores
- .. shopping centres

- transports

- . total no of industrial vehicles
- . " " " coaches
- . " " " private cars
- . " " " motorcycles

- communications

- . personnel employed in the postal service
- . volume of correspondence handled by the post office
- . No of post office giros
- . No of telephones installed
- . No of telegrams sent
- . mass media
  
- .. no of regional daily newspapers, and no of issues printed.
- .. no of radio stations of regional character.
- .. no of television stations of regional character.
- .. no of cinemas and theatres.

- tourism

- . no of hotels according to the no of their rooms.
- . no of camping sites.

- health services

- . no of persons employed in health care
- . no of doctors per 1,000 inhabitants
- . no of health technicians
- . no of hospitals per 1,000 inhabitants
- . no of clinics per 1,000 inhabitants
- . no of hospital beds per 1,000 inhabitants

- Banking services

- . no of banking entities (state and regional)
- . no of banking offices ( " " " )
- . no of employees.
- . assets

- Stock market

- . Stock exchange

- Public Administration

- . No of employees in central, regional and local administration
- . Budgets of the different State administrations, local corporations and Social security.
- . Investment. Income and current expenditure.

2.7. Despite the differences in specifications and definitions, other relevant information includes?

- Production

- . gross value added
- . total production by goods and economic sectors
- . use and finality of production (broken down by sectors)
- . social services

- Income

- . income per capita
- . other indicators
- . creation of income and its distribution: functional and personal.

2.8. Living conditions and environment

- standard of life. Cost of living
- distribution of dwellings according to their type
- sanitary conditions
  - . distribution of dwellings according to no or absence of baths.
  - . dwellings without access to running water
- Facilities of dwellings
  - . telephone
  - . washing machine
  - . refrigerator
  - . central heating

2.9. Cultural and socio-linguistic variables

- language
  - . no of population that speaks a majority language.
  - . no of population that speaks a secondary language.
  - . no of population that speaks a third language.
- religious observance
  - . no of population that are catholics, protestants...
- election results
  - . levels of participation in general elections
    - elections regional "
    - municipal "
  - . parties or tendencies with most votes.

3. Basic information on inter-regional and international movements.

3.1. Population migration

- population migration according to region of procedence and region of residence.
- migrations of the active population, according to region of procedence and region of destination.
- 3.2. Inter-regional flow of goods and interchanges of services.
- 3.3. Inter-regional and international financial transfers, flows of money and income.
- 4. Data on the economic situation
  - 4.1. Evolution of wholesale prices  
  retail                 "
  - 4.2. Changes in wages and salaries.
  - 4.3. Level of unemployment.
  - 4.4. Degree of use of productive capacity.

#### IV.2. Difficulties and limitations of regional statistics.

Having explained the subjects and statistical indicators which are of interest, reference must now be made to the problems raised by the elaboration of Regional Statistics:

The separation between activities carried on within and outside the region by private enterprises which have establishments in different parts of the state, and do not keep separate accounts of their operations or activities, for each establishment. The multiregional structure of such enterprises obliges the statistician to take as his unit of observation the establishment and not the enterprise, situating himself at a level which is not that of centre of decision nor the accounting unit.

The regionalization of economic activities which have a centralized character, especially communications, financial services and certain public services. The regional distribution of data on production and gross value added in sectors such as energy production and transports is nor viable if supplementary elements are not available. Frequently estimates of production and consumption in sectors which are not regionalized are made on the basis of more or less representative indicators of the relative weight or part which the region has

in the total production and consumption of the state. Calculations derived from the pro-rata reduction of national data according to the size of the magnitudes employed as indicators are based on the assumption that the characteristics of the production, consumption and income of the region are the same as those of the national average, when however, it is the regional variations with respect to the national average which regional statistics should be pointed out. The direct method, using specific surveys in the regions, could partly resolve this problem, despite the practical problems which it raises.

Another task to add to the above is the regional accounting of the income and expenditure of the public sector and the central administration: and also the calculation of the costs of the central administration for each of the regions. The fundamental reasons explaining the backwardness in this field are the lack of political will, coupled with the technical complexity of the task.

Referring to the exterior sector, the commercial transactions of goods and services between regions and the rest of the world are difficult to evaluate since there do not exist registers of the exterior flows from the region.

The difficulty of obtaining minimally reliable information on the current operations of the domestic and empresarial economies, those of the public administration and the exterior sector, causes problems in another important aspect: knowledge of the channels of finance and investment.

The indicators and data arising from surveys and estimates on a state basis cannot be applied at regional level since the samples chosen in the carrying out of such surveys and estimates are not representative nor correct for each of the different regions, which means that the process of elaborating these estimates should be begun again on new lines. In the case of input-output tables, for example, which are useful in the representation of intersectorial relations and interchanges, the general structure of inputs is known from statistics of national samples, while the productive structure of the regions differs on this very point from the national average.

An additional difficulty in the Project we are studying is that of the homogenization of the regional statistical indicators. In the first place there exists the problem of establishing the definition of the information to be collected, and afterwards the elaboration of the data collected to the pre-established criteria. In every state there is a different statistical methodology, related to the particular context. Moreover socio-economic phenomena are not identical and therefore an identical measure for all states could only be found after much research and repeated tests. However, despite these differences, there is a minimum of coherence (nomenclators, codes, etc.,) which allow the task to be begun at least. There are certain areas where there is more general agreement, because of longer experience in these fields (demography).

#### IV.3. Regional statistical sources

The available statistical sources can be placed in two groups: regionalized national statistics and those that are strictly regional. Both can be the result, either through specifically statistical operations, censuses or surveys, or through the use of administrative documents or files for statistical purposes.

The most numerous statistical sources which give the greatest regional information are the regionalized national sources:

The population censuses give very detailed information on small scale geographical areas. They are fairly uniform in the type of information they contain, and especially standardized in their demographic aspects. Moreover, in all the European countries, they are carried out regularly.

The numerous agricultural censuses offer very complete and detailed information. Often, however, they have not been adapted to take into account structural changes which have taken place in the agrarian sector, for example, mechanization or the use of chemical fertilizers.

There do not exist important regular censuses of the industrial,

commercial and services sectors. However the establishment of exhaustive surveys or samples by enterprises and entities is at an advanced stage at the present.

The strictly regional statistical sources are scarcer and less regular. Their irregularity and experimental character make their treatment difficult for various reasons: difficulty of access, divergences in the methods and techniques employed in the regions.

In consequence, given the lack of tradition and common experience of regional statistics, little advance has been made in the standardization and homogenization of the strictly regional statistical sources. However these regional sources allow the quantification of the value of the indicators which the regionalized national statistical sources cannot reflect in any special way because of their nature, referring to regional economic activity and conjunctures.

The collaboration, contributions and judgements of the members of the I.A.R.U.S., as correspondents in different countries of the project will be fundamental and indispensable for the homogenization and treatment of these properly regional statistical sources.

#### IV.4: A first evaluation of the statistical sources.

The different regional divisions used by the different statistical organisms of the European states -and the lack of knowledge of the possible effects of this difference of criteria- as well as the lack of antecedents for a regional database for all Europe, impede the valoration and estimate of how far the plan of basic information outlined on pp. 35 to 40 can be carried out.

The design of the project will have been little explained if only its objectives and possible difficulties are outlined. An evaluation of its viability is necessary in order to design a first methodological scheme of the work and to outline the first objectives.

To this end the analysis of a statistical publication of census type, common and general in most states, has been considered useful. The censuses appear to be the most adequate instrument, and that of greatest use in attempting to produce broken-down information.

At the same time yearbooks, as publications which contain information taken from diverse sources, including censuses, and designed for the divulgation of information, are more standard and stable. In the documentation centre of the I.N.S.E.E. in Paris, access was had to yearbooks from recent years.

The comparison of the regional statistics contained in the annuals of twenty-one European states shows a greater profusion of broken down data by regions in stock magnitudes, taken from censuses or from ministerial statistics. However regional data on industrial structure and activity, on the economic conjuncture, on the exterior flows of goods and services, and on capital transfers, are scarce.

Having carried out the task of comparing the twenty-one annuals, we can say here that the main socio-economic indicators to be found in the greater part of the annuals, re-ordered according to the list on pp. 35 to 40 are:

- 1.- Characteristics of the regional structure of the European states.
  - type and number of territorial-administrative divisions.
- 2.- Basic regional information referring to:
  - 2.1.- total surface area
  - 2.2.- total area of land under cultivation
    - . cultivated according to types of cultivation
    - . pastures
    - . woods
  - transportation infrastructure
    - . n° of km. of local roads
    - . n° " main roads
    - . n° " motorways

- . n° of km. of the railway network
- . n° of km. of navigable canals
- . n° of airports
- . n° of ports

2.3.-

- total resident population by sexes
- determinants of the evolution of the population
  - . birth rate and general mortality
  - . rate of natural growth of the population
  - . balance of immigration and emigration. N° of emigrants and immigrants by regions and countries of procedence and destination.
- concentration of the population
  - . population density
  - . distribution of the population according to the size of settlements.
  - . n° of nuclei or municipalities according to their size.

2.4.-

- rates of activity by sexes
- rates of occupation by sectors of activity

2.5.-

- n°. of students in pre-school, primary, secondary and university education.
- n° of institutions of pre-school, primary, secondary and university education.

2.6.-

- Agriculture
  - . n° of agricultural exploitations according to size
  - . distribution of the agricultural exploitations according to their surface area.
  - . total of hectares according to the size of the exploitations.
  - . n° of tractors and agricultural machinery.



- . quantity of fertilizers per hectare
- . census of herd animals
- . annual agricultural production by types of products.

- Services

- . transports
  - .. total n° of private cars
  - .. " " " motorcycles
- . tourism
  - .. n° of hotels
  - .. n° of camping sites
- . health services
  - .. n° of persons employed in health care
  - .. n° of hospitals
- . communications
  - .. mass media
    - ... n° of radio stations
    - ... n° of television stations
    - ... n° of cinemas and theatres

2.7.- No information at all.

2.8.-

- n° of dwellings according to whether they are principal or secondary residences or are empty.

2.9.- No information at all.

3.- Basic information on inter-regional and international movements.

3.1.-

- population migration according to region of procedence and region of residence.

3.2.- No information at all.

3.3.- No information at all.

4.- Data on the economic situation.

4.3.- Rates of unemployment by sexes.

The previous items, though perhaps small in number could given their importance and immediate availability, however constitute a first block of information in the European regional database. This homogeneous and comparable information constitutes a framework to which reference can be made when inserting other regional information which is not at present available. Furthermore the existence of this general data is a guarantee of viability. If this was not the case, if there did not exist comparable information at the level referred to above, the horizons of this project would be very different.

V.- 1.- Organization and phases of the project

A basic pre-requisite for the carrying out of this project is that it be linked with persons throughout Europe, through the I.A.R.U.S.

V.1.1. Organizational Structure

We consider that the best way of organizing the work to be carried out is by distributing it between the following participants:

a) Permanent secretariat

This undertakes the tasks of coordination and promotion: it sends questionnaires to correspondents, organises consultations with specialists, manages the information received, designs the methodology of the work, etc.

It will be a team comprised of a technical expert, qualified in regional research and capable of directing a meeting on methodology, making contact with statistical centres in the European states, participating in the information design, etc., and by a multilingual secretary.

Their work will be part-time but constant.

b) Advisory council

This will meet periodically and follow the march of the project. It will take responsibility for the direction of the project (ad honorem).

c) Occasional consultations

These will consist of very specific consultations on subjects demanding deeper study, with well-qualified persons. For example, the first list of information to be demanded, the pre-design of the codification system and of the information system, etc.

d) Correspondents

These will be technically qualified persons from each State, the greater part of them members of the I.A.R.U.S., who will facilitate information, (along with the necessary explanations), either directly or through the collaboration of others, and will eventually be disseminators of the results within their geographical area. The existence of these correspondents will make possible the realization of the project through the knowledge that they bring to it and their access to the available statistical sources.

V.1.2. Phases of the project

0.- File of persons and institutions connected with regional themes.

1.- Selection and contacting of correspondents by the Secretariat.

2.- Study of the information demanded.

The secretariat will undertake the necessary consultations for the elaboration of the final questionnaires. These consultations will be with experts (individual advice), and with the correspondents. The advisory council will discuss and be responsible for the questionnaire.

The questionnaires to the correspondents will revolve around three types of problems:

- the regional divisions in vigour within each state.

The information that will be collected on them

A first questionnaire will formulate questions to confirm the selection of the basic spatial unit studied. (B.S.U.), and demand information on already completed work for its cartographical computation.

- the regionally based statistical sources (mainly the censuses in the first phase).
- the statistical information, taking into consideration the indicators in the list on pp. 44 to 46 to see what level of territorial aggregation suggests itself. It will take into consideration the indicators in the list on pp. 44 to 46 and the years in which this information is covered, beginning with the period posterior to the Second World War.

The extension and complexity of the information demanded and considered in these three sections leads to the thought that the surveys should be periodical, continual and not too extensive. The best technical solution would be progressive thematic questionnaires beginning with the most basic aspects, which are the easiest to analyse and study.

In the measure that general information on the socio-economic structures of the basic spatial units is collected, the posterior questionnaires can be evolved, using the experience and results of the previously formulated questions, profiting from the successes and errors of the preceding questionnaires.

To conclude, the systematization and progressive nature of the questionnaires, as well as the continual examination and criticism of their design, content and results is of great relevance, given the complexity of the aims of the project.

### 3.- The design of the form of information storage.

The Secretariat will seek the necessary help in determining a system which will allow the following to be carried out with agility:

- store the numerical, cartographical and documental information on the B.S.U. and administrative macroregions (in those cases where information on the B.S.U. is not available).

ations, etc., and will consider the need to begin a second stage of the collection of information.

It should be emphasized that the information file offers great versatility with respect to applications deriving from it or which can be extracted from it, allowing it to meet the needs and necessities of publishers with the minimum of effort.

Although it is foreseen that the project will take two years, it should be taken into account that the operation and practice of collecting information could offer some individual results previous to the end of this period, the fruit of progressive dedication to certain themes: demography, resources... and in different presentations: numerical data, maps, comparative studies, etc.

To facilitate and promote a profound knowledge and also the divulgation of the regional fact from all points of view the diffusion of information is indispensable.

Unelaborated basic information, directed towards giving a greater knowledge of a particular region, or on a group of regions suffering a common problem.

Articles, documents on specific themes, comparative historical or present day studies are all original contributions and elements for research which are indispensable and which should be adjoined to certain exploitations and explorations of the database. Use should be made of the line of diversified publications, which make use of the stored information and the capacity to manipulate it automatically.

- according to the geographical spaces selected
- according to the public to which it is directed  
(statistical divulgation or introductory works for students, for the general public, aimed at politicians, enterprises, etc.).

This divulgation or the edition of information will occupy itself with those problems whose principal focus is spatial. Since its aims and descriptive or explicative uses are numerous we are not going to consider the full range, but will instead advance some cases of possible studies.

V.- 2.- Some examples of analyses where regional information is fundamental.

- Characteristics of the structure and functioning of the economic space considered.
- The role of certain privileged activities in the regional space.
- The adaptation of the productive activities, their role in regional development: motivating or induced activities.
- Orientation of agriculture: level of commercialization and especialization in agrarian production.
- Grade of specialization and diversification in industrial activity.
- Studies of the most progressive industrial subsectors.
  
- Disparities between the above mentioned space and other regions of the state, or other parts of Europe.
- Inequalities in levels of income, consumption, salaries, age, structures of the population, forms of urban concentration, systems of cities, differences in the rates of general and specific activities, etc.
  
- Relations between the region studied and the economic area that it belongs to.
- The role of the region in the development of the state, its economic autonomy, and its role as motor or brake on the economic activity of the adjacent regions.
- Its participation in the European economy. Its relationship with other regions or European countries.
- The consideration of the same aspects is possible from a dynamic perspective if temporal series can be collected.

International Association for Regional and Urban Statistics

a section of the  
International Statistical Institute



EUROPEAN REGIONAL DATA BASE INFORMATION PROJECT

E.D.I.P.

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## I. INTRODUCTION

The objectives and general guidelines of the present project were considered in the third point of the agenda of the 24th Meeting of the Board of the IARUS, in the session which was held in Budapest on the 14th and 15th of May 1979. On that occasion two things were considered: the possible utility of the project, and whether it matched up to the objectives of our Association which, according to Article 11, 21 of the Statutes has, among others, the following aims:

a) to promote the production and use of statistical data to meet the needs of regional and urban administration, research and planning and for other social and economic purposes.

b) to further the international comparability of regional and urban data.

and

c) to exchange professional knowledge relating to regional and urban statistics.

Thus it was recommended that the project should be developed and given form through the relevant research, so that once it was finalized it could be presented for debate at the 25th Meeting of the Board to be held at Exeter from the 20th to the 23rd of May 1980.

Before going on to pick out the most interesting aspects of the present document, it is worth giving some consideration to the motives behind this project and the context in which it is situated, in order to allow a better understanding of both its importance and its limitations.

With regard to the motives it must be pointed out how the interest within the scientific world in regional problems and approaches has grown in recent years. This is due to many factors - some of which are mentioned in the text- which range from the explosive growth of the great conurbations and metropolitan areas, to the development of sophisticated multi disciplinary techniques of analysis of economic and social behaviour patterns and to the crisis in the regional organization of the state.

This growing interest in the regional problem has not however, generally speaking, been supported by the organization of flows of statistical information to facilitate the task of those interested in the analysis of these phenomena. In this context one must make an exception of the advantages achieved by EUROSTAT in its attempt to supply statistical information, which is limited however to the so-called "European Standard regions" within the EEC.

The problem of making available statistical information on all the kinds of regional divisions in all Europe continues however to be a current and relevant one. It is not just having certain parameters (statistical information) for a certain regional division chosen in function of certain concrete operational objectives (the case of the standard regions). It is a matter of having real freedom to choose the most suitable regional division for the objectives of the research and analysis which it is planned to carry out. It would be useless not to face up to this fundamental fact. Any division of a whole into its parts (or regions) implies a value judgment. And so it is necessary to give researchers the statistical information referring to the territorial division or region which they themselves have freely chosen.

It is this last aspect which tries -within the limits imposed by the institutionalized practices of the storage of statistical information which exist in the different countries

of Europe -to be the central axis of the present project. It tries to give the maximum versatility to the aggregations of statistical variables so that researchers can freely choose the "regions" with which they want to work, without the problems and restrictions imposed by the powers that be which oblige the reading of events within the limits of their own proper norms. And this means that it starts from the basis of the principle of freedom of information for independent analysis with all its consequences. The use which is made of this freedom is a question of the moral and political principles of those who carry out the analysis of the data which it is hoped to facilitate. Thus, with the tools which will be placed at the disposition of the scientific community, one can break the reified exigency of that Leviathan which, at the same time as it demands the postulation of all reasoning according to the principle of "say it in figures", carefully keeps all the statistical information for its own exclusive and proper use.

Two facts must be pointed out when referring to the context of the project. Firstly, an essential fact. The project, in its global outlines, would not have been born without the existence of an association which links statisticians for the most part, belonging to different European countries, and which has shown, during decades its interest in the free circulation of information. The International Statistical Yearbook of Large Towns 1972, among other publications, makes plain this wish to develop a statistical language which allows the intercommunication of the problems which affect the urban communities of different countries. The present project tries to direct the interest of these professionals to new objectives: the regional dimension of statistical information, and from a new standpoint, the changes in these caused by the technological developments of recent years. Today, in the computer era, it is strategically necessary to create information files, deposited within a host, which are accessible to investigators all over the world through the telecommunications networks (EURONET among others). The aims of diffusing the information are always the same. However the medium has changed, and in

*this context one must not forget the statement of MacLuhan, that the medium is the message.*

*Secondly, it must be pointed out that it would be wrong to think that the project which is presented here is unique and privileged. There are other initiatives. There has taken place what the antropologists call "cultural parallelism". When the group which was elaborating the present project had carried out two months of work sessions, they learned of the Turin Symposium (17th-22nd of March, 1980) organized by the "International Federation of Data Organization", which focused, among other things, on "country reports on currently operating local-regional data bases", pursuing similar objectives to a certain extent. However it was decided to continue with the project which was already begun with the firm decision of establishing the relevant contacts once the project had been finalized and presented for the consideration of the Board of the IARUS, thereby fulfilling the obligation which had been taken on. This, in practice, means that it will be necessary to make the contacts and the necessary cooperation with the IFDO, if the IARUS considers the present project to be valid in its general outline. In this connection it should be pointed out that Prof. Martinotti, President of the IFDO, has shown his interest in knowing the contents of the project, as soon as it has been considered by the Board of the IARUS.*

*Having stated the above it is necessary to make some brief remarks on the content of the document. In the first place it must be pointed out that there has been no attempt to make a valuation of the costs of implementing the project for various reasons. Firstly a detailed programme cannot be evolved without knowing the valuation of the strategic and tactical options adopted by the Board of the IARUS at the Excter meeting. Secondly the project is conceived with a modular design. This means that setting up module 01 (Yearbook indicators) is easy to do and could be carried out immediately. The bringing into*

operation of successive modules (entering data from the Censuses of Population, Agriculture, etc.) will have to be the subject of a technical and financial study, case by case. In any event, once the project has been approved by the IARUS, contacts should be initiated with potentially interested organizations (ranging from IFDO to European foundations), and only from the information obtained should a detailed study of the costs of the different modules be elaborated.

The project deals in the first place (Chap. II) with preliminary hypotheses and objectives, some of which have been pointed out in the present introduction. In the second place (Chap. III) it deals with the technological and methodological aspects of the data base, and especially with the selection and justification of the Basic Spatial Unit. It also gives special attention to the functions which the proposed information system should be able to carry out. Within this chapter all that which refers to the documental base of the System (the European Division referral file) is treated in certain detail, since it is considered crucial for the adequate "contextualization" of the statistical information which it is hoped to organize. Chapter IV deals with the priority contents of the data base, while making an empirical analysis of the possibilities offered by the existing and accessible statistical publications. In Chapter V, besides the presentation of some examples of analysis, the essential features of the method of work and the organizational forms necessary for carrying out the project are given.

Having made this brief description of the motives, context and content of the project it only remains to state our gratitude to the institutions which have made this research possible and to the collaborators for their disinterested efforts.

I would also like to express the wish that this project will be one more factor in the integration of all the members of our Association, contributing to the reinforcement of our belief in the need to promote statistical language as a privileged tool of communication between the complex societies we live in.

Lluís Carreño Piera

President of the International Association  
for Regional and Urban Statistics (1978-79)

## II. PRELIMINARY HYPOTHESES AND BASIC OBJECTIVES

### II.1. The historical and political background of the region.

The European area is at present in process of integration. The historical European regions, based on linguistic features or on geographical characteristics which go beyond political divisions, along with the metropolitan areas which have arisen in the recent past for functional reasons, make up however a solid regional framework. In this way the specific nature of the regions which make up Europe is maintained.

A double process has taken place in Europe during the last two decades. Europe has stopped being understood as the sum of its independent and separate states, and the governments of these same states, as well as the supranational institutions, have progressively come to recognize the diversity of the regions of Europe. From the middle of the fifties the concept of the region as a highly significant political, administrative and economical unit became generalized; questions began to be raised about problems of regional development and the first research in this field carried out.

In the countries of Europe industrial development has often worsened regional inequalities, increasing social and economic inequalities of all kinds between the regions of the same state, creating regional differences in population levels, emigration and immigration, levels of income and consumption, etc. It is not surprising then that concern about regional imbalances is increasingly expressed by politicians, administrators and society in general in these countries.

The worsening of the imbalances between regions has given increased weight to arguments demanding administrative and institutional decentralization, and the strengthening of decision making centres and institutions within the regions.



Although questions referring to regional growth and imbalances acquired relevance and actuality in recent years, due largely to the rapid and intense industrial development which took place after the Second World War, the region, understood in the most generic sense as a sub-state area, had already shown itself to possess, during some long time, considerable significance and interest, though for very different reasons.

The survival and continuing protagonism of the European regional system cannot be understood without referring to its feudal origins. The autonomous and self-sufficient economic and social organization of the feudal territories caused or favoured the internal unity of some of the regions within Europe.

The formation and consolidation of the absolutist states in Europe signified a testing process of centralization and concentration of political and economic power in all Europe, along with the other functions attributed to it: administrative control, public order... With absolutism, then, there took place a process of unification of areas which had been almost completely independent until that moment.

In a context of strong demographic increase and of the expansion and diversification of production, the modern European states increased and amplified their functions or areas of control and intervention, perfecting their mechanisms of management and information.

Linked to the state there arose a political and technical-economic concept of great importance: the economic agreements,<sup>(\*)</sup> the negotiations about the distribution of the costs of the state among the different areas making up the state. And, in consequence, the discussions on the sharing out of spending and taxes.

The first censuses as balances of the wealth and inventories of the human resources and factors of production of the different regions of the state, were the basis for the calculation of taxes.

(\*) conciertos económicos

The development of the science of Statistics and the shaping of the complex state apparatus responded to the need for information for the control and administration of the affairs of the state.

The expansion of the services of education and health, as well as the character and the public responsibility which they later developed, along with the greater state intervention in economic activities (investments in important sectors, and in energy production and the general infrastructure) multiplied the regionalization problems of the services and investments of the state.

The state defined and took on the organization, elaboration and diffusion of information. As far as stock data was concerned, this generally came on a territorial or regional basis. However flow data such as economic forecasts and accounts, has generally been organized and presented in order to illustrate and quantify situations common to the whole of the State.

In the economic expansion which followed on the post-war reconstruction, the orientation of plans of economic programmes and coordination changed from being global and sectorial to being elaborated on a regional basis.

The consciousness of the economic differences and imbalances between regions in which economic development had not taken place at the same rate nor in the same way, has been one of the more important reasons for the systematic incorporation, of the region in plans for economic growth. Moreover, despite the lesser importance of the political instruments which regional planners dispose of (regional statistical information is one of them), this regionalization of economic policy has in its favour the conviction of its greater effectiveness. It is accepted that there is a much closer relationship between economic growth and public economic policy at regional level than at state level. There are greater difficulties and reasons for not believing that the index of economic growth at national level is raised as a direct result of economic policy, when this is not true of the regional economy.

Industrial development accentuates the phenomena of dependence, of concentration of population in some regions and depopulation of others, of relative backwardness etc., and the extension of democratic and representative forms and structures, as well as the demand for responsibilities by the regional entities, demands a reconsideration and institutionalization of the region. The region tends to recuperate and/or obtain a greater protagonism in the control and management of economic, political and social activity (as well as a greater participation in the organization of the state apparatus). Certain regions are going through the process of recuperating their autonomy and own representativity within the state. The right of the people to their own culture, history and institutions eventually becomes part of the restoration of public liberties, universal suffrage and the right to free expression and political association.

Political and administrative decentralization raises new questions about its organization and function when confronted with the problems of town planning, the policies for the reconversion of sectors, the preservation of the architectural heritage etc. The transfer of resources and responsibilities from the central administration to the regional political centres is greater every day. It therefore becomes necessary to develop a regional policy which defines the interregional distribution of resources, and the repercussions of this for their distribution, and the carrying out of plans and programmes of public services, etc. A regional policy will be inviable if precise and reliable regional information is not available.

The open character of the region aggravates the lack of information. While relations with the exterior represent only a small field of action for all the states of Europe, for all the regions of Europe exterior relations are extremely important. The region exports and imports a greater proportion of products and services than the national economy as a whole. The lack of frontiers means not only that interregional currents are stronger but also that many of them are not registered.

If regions are more open systems their growth has greater probabilities of causing imbalances. The liberalization of the interchanges of goods, services and capital and the free circulation of workers caused by the processes of European integration can worsen these problems of imbalances still more, if these liberalizing measures are not accompanied by common progressive policies between regions. The supranational organisms such as the European Community Organizations (E.E.C., EURATOM and the C.E.C.A.) and the COMECON, share this interest in regional problems. The statistical information which these institutions deal with and analyze is often concerned with the regional impact of the phenomenon of integration, and with the policies of development and plans for the restructuring of the regions and of co-ordination between states. But despite the interest of the Community institutions in the subject of the regions their influence and weight at this very level are limited.

## II.2. The consideration of geographical space. Problems in the definition of the region.

Unlike studies in geography which are centered on the consideration of space, in economics the concept of space has often been ignored or not taken sufficiently into account.

Space as defined by the economists often seems to the geographer to respond to an abstract notion. The economist is interested in the study of certain variations which, in themselves, do not form part of the space under consideration. In the geographical approach events which occur in the same space are primordially those taken into account, while in economic analyses space is simply an element brought to bear in the study of other phenomena.

The geographers were the first to study regions. At first these studies consisted of descriptions of aspects of their natural environment, of the activities carried on in them and of the man-made environment, in the framework of a space defined a priori by natural or historical criteria. They did not go any deeper, either in the search for, or in the discussion of criteria of regional division.

The geographers, then, made possible a detailed knowledge of the regions which they studied in monographs; but regional geography found itself without means when confronted by more general problems. The term region was indistinctly used with different meanings and content according to authors and contexts. However, it was generally understood as an area in which certain common characteristics were seen. In some cases through simple extension this was converted into an adequate unit for certain administrative aspects. For example: regional plans, regional functions-teaching, health, judicial, electoral.

For a long time the geographers tried to define the region by what it contained. Within geographical limits this content presented itself and was defined as the homogeneity of the landscape.

Even today, in certain zones the conditions of the physical environment which are those that determine the landscape, can in consequence, define the region -the natural region. A range of topographical, climatic and bio-geographical factors allow the definition of a homogeneous area from the point of view of natural conditions.

On the other hand, in other zones and according to a different approach in geography, it is the organization and activity of the community and its effect on the environment (the manner in which the agricultural areas are divided as a function of the types of land owning, the different kinds of crops, the organization of work...; in other words the forms which development has taken in the rural or urban environment) which is the principal factor giving unity to the "landscape". This is also a criteria for regional definition based on homogeneity, but not on natural physical or geographical peculiarities, rather in the specific historical process. For example, if we consider economic activity in its most general aspect of agricultural or industrial activity as a shaper of the landscape, we can therefore refer to agricultural and industrialized regions.

Defining spatial units in terms of themselves, of the differences between them or of their content, carries two possible risks: that of making abusive and inoperative generalizations, or, on the other

hand, dividing space excessively through making the criteria of homogeneity by which the region should be defined, too narrow.

In those zones in which certain levels of population density and diversification of economic activity have been reached, and which therefore have a more complex social organization, the criteria of homogeneity loses much of its significance and explicative importance. It is not sufficiently explanatory of the juxtaposition and disparity of the activities and relations which are observed. We are not speaking in principle of a homogeneous region, rather of a region which is cohesive in its disparity.

The division of space in function of deliberately chosen diverse criteria leads then to divisions which are necessarily disparate among themselves. The different regions can even end up overlapping one another. This logical contradiction has led to the search for a more satisfactory territorial division, based on more global criteria: those related to the organization of the services necessary for economic, social and political life, their implantation and their users. Regional science therefore created the notion of the organic region.

This new concept of the region refers to an organized area, united organically and polarized. It is not directly opposed to the definition of the homogeneous area, but rather is situated at a different level of analysis, one which contains different types of realities and problems. The criteria of polarization evaluates the phenomena of interrelations within a region, those of commerce, market areas, population nuclei, the communications network etc., in as much as they represent bonds of union of differentiated areas. The great population nuclei create around themselves a general sphere of mutual influence and thus can constitute the vital centre of a region, and its cohesive element. The following are relevant data for the definition of organic regions: movements of persons, goods, money and information. The region becomes then, the area of influence of a capital or an urban network, drawing life from and giving life to the city which it surrounds. The analysis of regional structures includes studies of urban growth, the systems of cities, problems

and questions relating to industrial location, transports, tendencies towards concentration or agglomeration. New formulas are developed like those of external economies and diseconomies, while environmental problems raise themselves (the ceiling reached by the economies of agglomeration...). In the context of such problems the debate on regional delimitations takes on secondary importance.

It is not possible to find a single, closed criteria for regional delimitation, and this has, then, various forms and profiles, according to the point of view involved, the level of development of the area in question and the state and evolution of the disciplines undertaking the regional analysis.

The geographers, pioneers of regional studies, know today that the region does not have a petrified, closed character. They show an increasing interest in structures which are at the same time both the skeleton and the instruments of regional development. Without interchanges, without flows of any kind, geographical space finds itself without any regional structure.

In the measure that the region continues to convert itself from an object of study into a framework for political and economic action, intervention and participation, space will be investigated by economists. These will be induced towards making increasingly precise analyses of the regions while the geographers, as was noted above, will pay greater attention to regional dynamics, rather than to tracing out the limits of the region. It would seem that the two ideas of the region are evolving towards each other and that this is opening the way towards greater cooperation.

The delay of the economists in considering problems of regional growth explains the backward state of economics in understanding the processes of imbalance in regional growth. Interpretations have been made for example of the phenomenon of the polarization of development, recognising as causes and explicatory elements, industrial interdependence, economies of scale, external economies, the technical or economic indivisibility of certain productive activities, and the different distribution of the quantity and quality of productive factors. But the role played by each of these elements in the

process of industrial polarization is not known. In order to find out we need to design statistical indicators which will allow us to confront these interpretations with the reality of particular cases.

With respect to the term or concept of region, two groups of definitions have been elaborated.

The first are those that identify the region as a whole by only concrete aspects of it. There are two causes leading to this type of definition, on the one hand the application of simple or partial criteria in the definition of regional areas, and on the other, the fact of carrying out a regional approach within the discipline to which the author of the definition is trained without taking into account the views of other disciplines. The interdisciplinarity which studies on the regional theme have to adopt, is another reason explaining the prolixity and confusion to be found in the use of the concept of the region. The region is not the same for the geographer as it is for the biologist, nor for the economist, the sociologist, or the administrator, although in some cases they can be in agreement. Moreover clarifying what each of them means by the region, is not of the same importance to all of them, nor do they all feel the same need to do so. The aims of each of these sciences are different and their methodological development and techniques distinct.

The other group of definitions are sufficiently general for use in any kind of regional definition. Their possibilities of being operative in practice and their usefulness when applied to scientific work are however almost nil. They are abstract definitions in vague and general terms, and therefore of only limited applicability in practice, their very generality losing them the practical effectiveness which every scientific instrument must possess.

At the edge of this second group of definitions is found that of the dictionary: "Region: portion of territory defined by special ethnical, productive, geographical, administrative, etc., circumstances". The vagueness admitted in its use is very wide.



Accepting the inexistence of any single definition of the region, need not lead us to affirm that there do not exist definitions of greater importance and utility than others and that the identity of some regions does not show itself in anything but the criteria and problems which we can pose for their definition. There are regional divisions which respond to more general criteria and are therefore of greater importance and applicability than others, and there also exists another type of regions with a high degree of differentiation, which appear as regions based in the most diverse criteria, with different problems and seen from the viewpoint of different scientific perspectives.

If one approaches, as in this case, a regional study taking in a number of states with different traditions and administrative structures, one must avoid finding similarities without previous study. The connotations of the term region are not the same in a federal state as in another with a long centralist tradition, because the regional reality and protagonism will be different in both cases.

It is relevant and of interest for this project to respect to the maximum the multiple sub-state divisions and to detail their meanings and contents.

### II.3. Objectives of the project

The lack of statistical information and regional documentation which has been observed is a difficulty and an important limitation for the development of regional studies or analyses taking in a regional perspective.

With respect to the regionalized information which exists on the countries of the E.E.C., only the Statistical Office of the E.E.C. systematically publishes data about the regions of the Community. The documentation which this Office handles refers to data of intra-Community trade and to the elaboration of policies for regional development and is insufficient for wider objectives. However the basic statistics of the European states give information on their respective regions, although this is not compiled and diffused at European level. The project of the I.A.R.U.S., a filial of the I.S.I. to create a bank of European regional data responds to this need and

the possibilities, offered by the existing data.

The realization of this project by an organization of international character makes it possible to dispose of information which would be of difficult access without contact with persons linked directly with the statistiscal organizations of their respective countries.

One of the additional and necessary by-products of the project for realizing a data base is the compiling and ordering of that disseminated and disperse material and documentation on the regions of Europe, which is considered necessary for the interpretation of the information collected.

The concrete study of the demand for regionalized information and the availability and collection of data will give an idea of the dimension of the data bank and its possible outputs and results, as much in form as in content.

Little advance has been made in overcoming the difficulties inherent in carrying out regional accounting. The models of national accounting (of the state) cannot be transplanted to the regional ambit. The lack of frontiers, and therefore of registers, among other problems, obliges the statistician to find other ways of apprehending the movements of population, goods, capital and services between the region and the exterior. It is necessary to use specific enquiry surveys, and go on to make estimates in order to be able to dispose of sets of basic information. Thus the availability of information on the economic conjuncture, industrial inter-relations, etc., is still unsatisfactory. Among the objectives of the project are those of the collection of statistical and referral data about the multiple studies and researches carried out in the area of socio-economic information, disaggregated on a regional basis.

Another tangential objective of the project, which is at the same time a phase in its realization, is that of identifying the different regional divisions of the European states, and contrasting the qualitative and quantitative differences in the information offered.

The information ought, as far as possible, to be compiled for territorial units which later permit aggregation, according to different criteria, into macro-regional units. The debate on the regional delimitations cannot be mixed with nor confused with the elaboration of the data base. On the contrary, this is a discussion which it is hoped to resolve by offering basic information on the European regions.

### III. TECHNOLOGICAL AND METHODOLOGICAL ASPECTS OF THE DATA BASE

#### III.1. The treatment of space. Selection of the basis spatial unit of information of the data base.

It could seem at first sight that we are in a closed circle: the prior need of fixing the regions in order to elaborate regional statistics and the need to dispose of these latter in order to determine the regions. Evidently the selection of the geographical boundaries of the areas in which information is going to be collected is an unavoidable first step in this project, and no statistical work can be carried out until the above-mentioned selection has taken place.

The basic spatial unit studied (B.S.U.) in each country will be that area greater than the municipality but the smallest possible in order to dispose of varied statistical information.

The fixing of the said basic spatial units of study in all the European states is neither an easy nor a non-conflictive task. The information which is compiled on them must be evaluated, although the selection and determination of these B.S.U. does not suppose a refusal to compile and make machine-readable data which are considered to be of interest at regional level (the sum of the B.S.U.) or municipal level, and which can be added to the data file through adequate treatment and consideration.

After making explicit the criteria and elements to be taken into account in the selection of the B.S.U., we have carried out a first test and made a selection from all the European states. A first difficulty has been the multiplicity of divisions in the interior of

COUNTRY	B.S.U.	Average Surface Area of the B.S.U. (Km <sup>2</sup> )	Average Population of the B.S.U.
Albania (1973)	26 districts	1105.7	88.338
Austria (1977)	9 länder	9317.	835.366
Belgium (1975)	9 provinces	3393.4	1,092.478
Bulgaria (1975)	28 districts	3961.1	306.946
Czechoslovakia (1977)	14 provinces	9134.1	1,069.556
Denmark (1976)	17 Amter	2533.8	297.959
Federal Republic of Germany (1976)	35 Regierungsbe- zircke	7089.8	1,699.742
Finland (1975)	12 lääni	28086.	393.374
France (1975)	96 departements	5666.7	548.497
German Democratic Republic (1973)	12 districts	8066.8	1,021.916
Great Britain (1976)	66 counties	3483.4	824.083
Greece (1971)	52 nomoi	2538.3	168.627
Hungary (1976)	25 counties	3721.3	425.012
Iceland (1975)	7 Kjödaemi	14689.8	31.290
Ireland (1971)	26 counties	2649.6	114.548
Italy (1977)	95 provinces	3171.2	595.803
Liechtenstein (1976)	1	159.5	24.169
Luxembourg (1970)	12 cantons	215.5	28.320
Malta (1967)	6 regions	52.6	52.369
Monaco (1968)	1	1.8	23.035
Netherlands (1977)	13 provinces	2600.8	985.730
Northern Ireland (1976)	26 districts	543.1	59.157
Norway (1977)	19 Fylker	17046.6	212.379
Poland (1976)	49 voivodati	6381.2	704.651
Portugal (1975)	22 districts	4165.0	429.491
Rumania (1977)	40 districts	5937.5	538.985
Spain (1976)	50 provinces	10095.	722.281
Sweden (1977)	24 län	17150.6	343.174
Switzerland (1977)	26 cantons	1588.2	242.215

U.S.S.R.	166 provinces, territories and autonomous republics.	134.186.1	1553686
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Total 818 B.S.U. without the U.S.S.R.

Total 984 B.S.U. including the U.S.S.R.

each State. Divisions with a great diversity of objectives: for the collection of statistical information, for the administration of the departments of the state, for the organization of multiple services related to commercial facilities, social life, professional affairs, military matters and civil defence, etc. All these independent divisions vary according to their aims and can overlap one another.

Some are based in existing political divisions, others are determined by the simple quantity of business which an office of the state can conveniently deal with, and others depend on the distribution of one or more activities, on problems of access and on the distribution of the population. A second difficulty is the diversity of territorial divisions which exist in the European states.

Despite the problems which the design of the project and the determination and elaboration of a list of basic spatial units of all Europe give rise to, it has been considered useful to append it to this project for two reasons: to give the dimensions of the basic geographical units of the file, and to offer a first list to the members and correspondents of I.A.R.U.S. The correspondents will be sent, along with this list of the B.S.U. of Europe, a series of questions to enable us to verify, contrast and correct the B.S.U. of the list by the statistical information which in the opinion of the correspondents can be compiled, taking into account its importance and usefulness for constructing and later reforming the historical, administrative etc. regions.

### III.2. The information system: functions

As was stated above (II.3.), the proposed objectives do not only consist of the collection, validation and storage of information. The product of this work is composed, on the one hand of a body of information, and on the other of certain processes or treatment of that information. These functions or system have as objective:

- facilitating the work of collection and storage,
- permitting a process of high quality validation,
- allowing the exploitation of the stored information, at least that which is most important and general,
- aiding knowledge and use of the stored information.

Without doubt the central element, and that which has led to the development of the project (whose starting point is precisely the lack of information), in this information system is the information itself, along with the treatment and processes which accompany it and help in its knowledge, use and verification of its quality, etc. Therefore the subsystems into which the global system can be divided must necessarily refer to the information collected in its different types.

The types of information considered are basically:

- quantitative or codifiable information
- cartographical information
- documental information on the B.S.U., their situation and the subjects covered.

The first two types are the basic element in this study. On the one hand the statistical information (see IV) will cover the deficit which exists at present. On the other, the geographical information (see III.5.) will allow spatial research, which is fundamental in these sort of problems. For example the realization of thematic, gravitational or non-linear maps; the identification of the different existing semi-functions, either by subject or with the aid of the different views of specialists (see III.3.). The graphical representation of any spatial unit relative to the research is a decisive aid for the knowledge and interpretation of regional reality, and therefore information on the localization and limits of any geographical or zonal entity is included as a fundamental feature in this system.

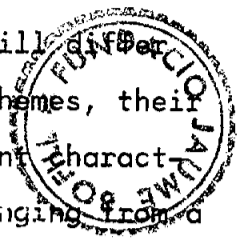
The facilities offered by the computer for the treatment of these two types of information advise their automatization. Moreover the additional advantages of an integrated design for the treatment of both types of information should be considered. For this reason, the treatments relating to statistical information and geographical or locational information (the definition of spatial units by the coordinates of their perimeters) have been grouped together in a single subsystem (see III.4.). Such treatments are completely automated.

The other two types of information facilitates the approach to and use of the system. For this reason they are connected with or depend on

the surroundings of the system, that is to say the users, their characteristics and objectives.

The wide range of persons who come to use the system will differ in their more or less profound knowledge of regional themes, their a priori postures in front of the theme and its relevant characteristics and in the degree of accuracy they require, ranging from a simple general consultation to the intensive use of information for research in depth. It is also necessary in this last case for the user to be introduced to the system, to become familiar with it, to know the definitions and the working hypotheses with which it has been constituted. In fact it is to be hoped that every user, whatever the level of detail at which he wishes to work, in his first contact with the system should consult a referral file where he will find the necessary general information on the possibilities and limits of the system, as well as the concrete definitions used for each theme, or spatial unit. This referral file will also allow a global vision or description of the "regional situation" in each State. (See III.3.). The fundamental objective of this documentation is to situate the user in the proper context of the system, and to allow him a knowledge of the institutional and organizational framework and significance of the statistical and geographical information which he wishes to use. It is not a question, then, of a manual for the use of the system, rather of a group of basic definitions which at the same time allow the identification of the criteria behind the collection of the information, and the compatibilization of information relating to the diverse situations of the different States (see III.3.). The automatization of this documental file and of its consultation demands an important formalization of its contents. In any case it is a question of a system for the processing of texts and in the first stage its automatization would not seem to be absolutely indispensable.

Finally the utility of including the definitions of the themes and B.S.U. in the automated system is also considered. These would be succinct definitions which would aid the user in the elaboration of the information without requiring him to go outside the information





system. This type of information also includes the lists of the different areas, and, when necessary, the differences or limits of those which do not coincide. All this information is included in the Dictionaries of the automated system (See III.4.).

In summary, it is foreseen that there will be an interphase, or first level in the use of the statistical and geographical information. This documental referral file is perhaps the most atypical feature in this information system. The need for it appears as a function of the difficulties and differences of viewpoint which the regional theme and its related information naturally bring with them.

### III.3. The European regional division referral file.

The presupposition and aim of this project is that without ample and adequate information which covers the diverse aspects making up the regional reality, a discussion on the content, reason and significance of the regional boundaries cannot be undertaken. The basic spatial units for the collection of information should allow, once sufficient information is available, the constitution of European regions and macro-regions through the aggregation of these.

If the region has to be object of study and definition from many distinct points of view -economic and social structure, culture, history, language, political expression, etc.,- significative and varied information in these respects must be collected in the referral file, which will allow the recomposition of zonings or historical and cultural regions from the B.S.U.

The territorial divisions of the European states, departments or provinces, districts, cantons, municipalities or "communes", etc., do not only have a geographical or ethnical, cultural or economic origin. What characterizes them primarily -and this point is crucial- is that they are public entities which dispose of some measure of political power or administrative competence, of a capacity for decision in matters concerning the interests of the inhabitants of their territory. However, taking only Western Europe for example, how can we compare from an institutional point of view, the Swiss canton with the Austrian province and with the German land, or with

each of the four parts of the United Kingdom, not to mention their comparison with the Italian regions. In some cases it is a matter of historical regions with particular sociological characteristics, in others it is a question of former provinces of medieval origin which have survived in the administrative framework, or of former States integrated into a federal structure. The peculiarities and specificity of the administrative and political structures and of their territorial organization is in itself a centre of interest for the project and a basic documental file on this question would be an instrument of great utility for the realization and use of the regional data bank which we propose.

An additional file, with a simple and easily managed dossier for each state should document and add information which it is difficult to standardize on the territorial divisions used in the statistical and geographical databank.

This referral file will contain varied documentation referring to the diverse information on the spatial units studied, or simply detected, in each country.

In the first place there will be a chapter dedicated to information on the B.S.U. in each country, which have already been defined as the Basic Spatial Units Studied in each country.

A second part of the file will contain varied information on those larger spatial units formed from the sum of various B.S.U. These Macro Spatial Units Studied are known as M.S.U. Like the B.S.U., they usually coincide with the current administrative units in each country, for which diverse statistical information is given.

In the third place we have thought it interesting to give information referring to diverse aspects (historical, religious, etc.,) which sometimes give rise to other spatial divisions which are different from those mentioned above, such as the division in religious administration areas (bishoprics, etc.) and sometimes do not give rise to any concrete division, but only characterize an area, such as the area where language X dominates, for example.

This referral file will be organized by states, thereby facilitating its consultation, and giving an introductory information base to the

person studying a country, region, etc., which will aid him to situate himself in relation to the reality he wishes to study.

A- Information on the Basic Spatial Unit Studied (B.S.U.)

1. Introduction.

The object of this point is the presentation of the B.S.U. studied in each country.

1.1. Name. Here it is only necessary to state the name which the BSU takes in each country (province, department, etc.).

1.2. Composition. This B.S.U. will almost certainly be formed by the aggregation of other units which are still smaller, which we do not study, and which coincide on many occasions with the municipalities. It is necessary to explain this.

1.3. Historical duration. The B.S.U., as the administrative unit which it tends to be, will have been in vigour for different periods of time in each country studied. Here it is necessary to state the date from which it has been in vigour as an administrative unit.

2. Formal study.

Here it is wished to present the most formal aspects of the B.S.U. in each of the countries studied. It is hoped to give the basic elements for a knowledge of the B.S.U. of each country, and at the same time, supply the necessary elements for a later comparison of the B.S.U. of each country.

2.1. Surface area. It is necessary to give all the data referring to the surface area of the B.S.U. in each country. Perhaps a good procedure would be: surface area of the biggest B.S.U., surface area of the smallest B.S.U., average surface area and a typification ( $x$  B.S.U. of more than  $x$  km.<sup>2</sup>,  $x$  B.S.U. between  $x$  and  $x$  km.<sup>2</sup>, etc.)

2.2. Population. Here all the data which allow the study of the population of all the B.S.U. of a country must be given: total population of the most populated B.S.U., total population of the least populated B.S.U., average total population, and a typification like that of the previous section (2.1.).

2.3. Composition. It has already been stated on various occasions that the B.S.U. are formed from the aggregation of smaller units which we do not study, and which often coincide with the municipalities. In this point it would be interesting to explain this process: the total number of sub-units, which B.S.U. has the greatest number of sub-units, which B.S.U. has least, what is the average, and a typification like that already mentioned in section 2.1.

3. Political administrative content of the B.S.U.

In this point the functions deriving from administration and political life which each B.S.U. in each country possesses should be explained. Therefore, and in order to permit a later comparison, we suggest the explanation of the functions of each B.S.U. should be made according to the following aspects (or to others which can be added according to the peculiarities of the country under study).

3.1. Political. Political institutions of the B.S.U. their concrete powers, public organisms, persons representing political power within the B.S.U., relations with the central power, etc.

3.2. Administrative. Administrative institutions, their concrete powers, administrative organisms, persons representing administrative power within the B.S.U., relations with the central administration, etc.

3.3. Electoral. Relationship of the B.S.U. to the basic electoral unit in the country studied, organisms, their responsibilities, relation to the electoral system of the country, etc.

3.4. Planning. The B.S.U. as a unit for regional, economic planning, etc. Relationship with other areas of planning in the country, competent organisms, etc.

B- Information on the Macro-spatial unit studied (M.S.U.)

1. Introduction.

The object of this point is the presentation of the M.S.U. studied in each country.

1.1. Name.

1.2. Composition.

1.3. Historical duration.

2. Formal study.

In this point it is intended to present the most formal aspects of the M.S.U. studied in each country. It is also hoped to give the basic elements for a knowledge of the M.S.U. of each country along with the necessary elements to allow later comparisons.

2.1. Surface area.

2.2. Population.

2.3. Composition. (Here this will be formed by the aggregation of B.S.U.)

3. Politico-administrative content of the M.S.U.

This point will explain the functions relating to administration and political life which the M.S.U.

of each country possess. In order to permit later comparisons we suggest that the functions of each M.S.U. be detailed in the following aspects (others may be added according to the peculiarities of the country studied).

- 3.1. Political.
- 3.2. Administrative.
- 3.3. Electoral.
- 3.4. Planning.

C- Information on other divisions.

In this section all the information referring to those divisions which are produced by the spatial localization of diverse aspects of human life, and which have not been classified for the moment, will be collected. All information of this type will be collected, independently of whether the new areas so configured coincide or not with the B.S.U., which is the smallest unit for which we have diverse statistical information.

The criteria which will be used for grouping these other spatial units together will be seen in what follows. We would like to state that in order to facilitate the use of this documental referral file, we will divide all the divisions studied above into two main groups, according to whether or not they can be reconstructed from the B.S.U. of their corresponding countries.

1. Spatial units which can be reconstructed from the B.S.U.

1.1. Divisions which have existed during history.

For each division in existence at some point in history the following data must be given:

- 1.1.1. Name.
- 1.1.2. Composition. from what spatial units was it formed.
- 1.1.3. Historical continuity. dates between which the division under study was in vigour.
- 1.1.4. Real content. the real contents (political, administrative, economic...) of these spatial units when they were in vigour.

1.2. Divisions which are or have been demanded. Those divisions which have been demanded for different reasons (historical, cultural, political...) although they may never have entered in vigour should be included here. Such divisions give rise to different spatial units from those dealt with up to now. The following data should be given for each of them.

- 1.2.1. Name.
- 1.2.2. Composition. what area is demanded.
- 1.2.3. Real content demanded. the real contents of political, administrative and economic type, etc., which are demanded in these areas.
- 1.2.4. Subject and cause of the demand. persons and groups demanding that these divisions be put

into effect and for what reasons  
(political, historical, etc.)

1.3. Other divisions. We divide all the other divisions encountered into two groups according to whether or not they have a concrete administrative content.

1.3.1. Other divisions with a concrete administrative content. all those divisions with a concrete administrative function and which can be reconstituted from the B.S.U. are included in this group. The following data must be given for each of them:

1.3.1.1. Name.

1.3.1.2. Composition.

1.3.1.3. Real administrative content.

1.3.1.4. Public organisms.

1.3.2. Other divisions without a concrete administrative content. in this section information must be given on all the divisions created by all aspects of human life. language, culture, religion, etc., which obviously do not have a real administrative content. The following data must be given for each of these areas.

1.3.2.1. Name. Division or area in function of the phenomenon X.

1.3.2.2. Composition. What division of territory is created as a function of the spatial distribution of the phenomenon X under study.

1.3.2.3. Other aspects which could be of interest or could amplify the information: organisms which are studying phenomenon X, etc.

2. Spatial units which cannot be reconstituted from the B.S.U.

2.1. Divisions which have existed during history.

2.1.1. Name.

2.1.2. Composition.

2.1.3. Historical continuity.

2.1.4. Real content.

2.2. Divisions which are or have been demanded.

2.2.1. Name.

2.2.2. Composition.

2.2.3. Real content demanded.

2.2.4. Subject and cause of the demand.

2.3. Other divisions

2.3.1. Other divisions with a real administrative content.

2.3.1.1. Name.

2.3.1.2. Composition.

2.3.1.3. Real administrative content.

2.3.1.4. Public organisms.

2.3.2. Other divisions without a real administrative content.

2.3.2.1. Name.

2.3.2.2. Composition.

2.3.2.3. Other aspects.

III.4. Automated treatment of statistical and geographical information.

It is necessary to automatize information. In the first place it makes its treatment easier, since it is voluminous and diverse. In the second place it allows its storage, availability and use in diverse forms and at distinct spatial levels, thereby avoiding the sclerosis and loss of information caused by only having it available at one regional level. The manual handling of the volume of numerical information and cartographical coordinates would be a disproportionate task. Nor would it result economic to prepare (calculate and design the tables and their mapping) by hand the foreseeable volume of information for publication.

In order to facilitate the availability and accessibility of the information, it could be offered in recorded form on tape, or deposited in a "host" connected to the European Network (EURONET). In both cases the conditions of accessibility and availability of the information without restrictions for its use in all kinds of independent analyses would be met.

1 - Objectives of the information system.

This will be an information system which will serve for the creation of files containing geographical references and data of maximum quality. Because of this need for quality it has been decided that

the whole process for the reception of data should be automated (validation, reliability analysis, etc.), and not just the last phase of this process which will be strictly a change of format.

At the same time it should be possible to control the available information and that which still has to be collected in each of the geographical ambits of interest. In fact, the system should aid the control of the development of the information collection operation.

A more important requirement of the system is that it should permit great flexibility in the "objects" (variables, zones) which it deals with, since it will be normal for there to be small differences between the general model and the information which is in fact available. If this flexibility was not the case, and the system had very rigid categories, then some of the available information would have to be left out.

Finally the information system should give a certain auto-sufficiency to its final product. Since it is a collection of data whose clear purpose is to be "transported", that is to say put at the disposition of many different users in very different situations, it is necessary for it to also include information on its own content, and that this information should be inseparable from the proper content of the system.

In summary, then, we can identify the following four main objectives:

- the storage of information and geographical references of the highest quality.
- flexibility with the objects it has to manipulate.
- it must facilitate the control of the ongoing development of the information collection operation.
- autosufficiency of the product.

In order to finish concretizing these objectives it remains to outline the organization around the information system. The arrival of information and geographical references (zones) will be more or less erratic. Therefore the introduction of information and



references will be carried out one by one, and not on a massive scale. Once the information has been introduced its veracity and reliability compared with the rest of the information which is already stored, will be controlled. In a parallel way it will be necessary to contrast the geographical references to make sure that they are correct. All this will be carried out by a team of persons who will, at the same time, check on the exhaustiveness of the information received or collected.

Taking into account this organization around the information systems, the functions which the system will allow are:

- The individualized actualization of information (for each B.S.U.) in function of the real answers and not just the original pattern.
- The storage of precise geographical references referring to the B.S.U. and the zones which are discovered in the course of the work.
- Answering questions about the situation in which each B.S.U. finds itself with respect to each piece of information or variable (reception, control, acceptance, rejection, substitution, waiting, etc.).
- Storing the labels for each piece of information or variable, as well as the definitions and observations relating to each situation or piece of information.
- Permitting the reliability analysis of the information, as well as the following analyses of content:
  - Thematic maps
  - calculations using the base information
  - regression analysis
  - factorial analysis
  - graphical representations of statistics
  - tabulations
- The consultation of the stored information through the following inputs:

- a B.S.U.
- a zone or region made up of B.S.U.
- a variable

and answer according to the content or whether it belongs to different zones.

The greater part of these functions must be realized in real time, due to the relatively important gain in reliability. Only the coherence tests must be carried out in batch, due to the long working time necessary, and also because the time allowed for answer permits this.

## 2. Information structure.

To satisfy the above mentioned needs, a pre design logic of the system desired must now be carried out. In the first place it is worth mentioning that the logic which will determine the system is that proper to graphic or spatial systems, that is to say those that manage spatialized information. It is not those that manage forms geometrically, rather one which manages information referring to spatial forms.

The basic information in the system will be available in three main data bases or files. (It is not the moment at present to discuss the physical structure of these and therefore we refer to them generically as files . These are:

- Dictionaries
- Information file
- Spatial reference file

2.1. Dictionaries. The dictionaries contain the information necessary to establish,

- knowledge of the information contained in the system.
- knowledge of the situation of each variable, each B.S.U. and each zone.
- the necessary lists for the functioning of the system, such as the B.S.U. which composes each of the greater aggregations or zonifications, the physical pointers necessary to find certain information, etc.

In fact the dictionaries carry out the task, in the first place, of contact with the exterior, undertaking the whole task of translating between the internal language (with its more or less esoteric codes in non-semantic form and the external language. In this way it is believed that it will facilitate the use of the same system in the ambit of different spoken languages such as English, French, Catalan, etc.

Secondly the dictionaries allow the logical relations to be made between the information (data) and the geographical references, such as the content of variable referring to zone X and the proper coordinates of the perimetre of this zone, the crosslinkings between different zonifications, etc.

Concretely the dictionaries which are necessary are:

a) Codifier-decodifier : This carries out the task of facilitating communications with the exterior, and therefore contains all the necessary information to allow it to give headings (of variables and geographical objects), to understand the informative contents (definitions of the variables), and to relate itself to the system (short and long nomenclators).

The basic unit is the variable and the geographical object. The information referring to each internal code is:

- short label (key to the secondary index)
- long label (for publication)
- definition1
- definition2
- source
- function of aggregation
- date of the information
- values between which it should fall

It can be seen that the variables are not differentiated from the geographical objects. The necessity of their definition and publication is the same. Apart from the "short label", all the other information consists of texts. The system is transparent as regards its content, that is to say that it manages simple information but does not analyze it.

b) The monitoring of the collection operations. The task of this dictionary is to reflect the state in which the collection of information finds itself, or put another way, the availability of information and geographical information.

The basic unit is the variable and the secondary index is the geographical object.

The information referring to each variable code is:

- code of the geographic object
- code of its situation
- date

This trilogy is repeated as many times as the geographical objects offer information on the variable.

The situation codes are:

- not received
- in connection
- correct
- awaiting new answer

It should be noted that this information only has meaning when referring to the B.S.U. and not to the composite zones.

c) Spatial relations. The task of this file is to allow the topographical (though not the metrical) management of space: inclusion and composition are the relations which are derived.

The basic unit is the B.S.U. and the secondary index is the zone.

The information referring to each B.S.U. is:

- zone
- zoning

This pair are repeated as many times as zonings have been introduced.

With these three dictionaries it is logically possible to retrieve all the information necessary to the system.

2.2. Information file. This file contains the collected variables. The basic unit is the geographical object and the secondary index, the variable. The parameters which define the subject of the information which interests us here are those of space and time. Therefore each real unit will be a space or geographical object and a date to which the information refers.

To each of these units will be referred as many pairs as necessary:

- code of the variable
- value of the variable

The structure of the code of geographical objects is as follows:

- B.S.U.

- 1 0
- 2-4 State
- 5-7 Code of the B.S.U. within the state.

- zone

- 1 1-7
- 2 Theme of zoning
- 3-4 Code of zoning within theme
- 5-7 Code of the zone within the zoning.

- lineal object

- 1 8
- 2 Type of line
- 3-4 Code of the line within the type
- 5-7 0

- point

- 1 9
- 2 Type of point
- 3-4 Code of the point within the type
- 5-7 0

On the other hand the structure of the code of variables is hierarchic.

2.3. Spatial reference file. In this file are contained the metric spatial references which define each geographic object - the B.S.U., and the zones are associated with the coordinates of their perimetres; the lines with the ordered coordinates and the points with the pair of coordinates.

Owing to the use of these references, it does not seem to be necessary to store only the points and afterwards compose the more complex geometrical figures. The redundancy of information allows an easier treatment, in relation to the volume which is contemplated.

### 3. Subsystems.

The information structure which has been established easily allows the realization of the functions proposed for the system. In order to facilitate the comprehension of these on the one hand, and on the other to ensure the logical analysis, it would be useful to group them in subsystems. Each of these carries out a fundamental task, and to some extent is comprehensible in itself.

3.1. Updating of dictionaries. It is necessary to be able to carry out this actualization on line. When a questionnaire arrives, the Codifier-Decodifier has to be prepared before introducing information referring to the B.S.U. and variables. In one transaction to possible new variables are indicated, always with the labels and definitions of the B.S.U. and zonings.

Once the information file and the Spatial reference file have been updated, the Situation Dictionary and the Dictionary of Spatial relations must be brought up to date. The former demands carrying out validation tests and reliability analysis.

In this subsystem there can be no logical validations.

3.2. Updating of files. We have to differentiate between two different parts in relation to the function of the file to be brought up to date. With respect to that of spatial references the possibility of carrying out batch actualizations must be considered as a possibility, using the output of a digitalizer, or through introducing coordinates which have been calculated manually and must therefore be introduced manually, in an on line transaction.

The validations to be carried out in this part of this subsystem are of two types. On the one hand geometrical, in order that the polygons are closed. (The superimposition of the parts must necessarily be controlled by hand). On the other hand, structural within the system, that is to say the existence of the necessary elements in the Codifier-Decodifier Dictionary.

The second part refers to the updating of the Information File. The philosophy of the transaction is analogous to the structure of the information: B.S.U.-date, variable code or label, value.

The transaction which actualizes this information must first have undergone a reliability analysis in coherence with the Codifier Dictionary, as well as a test of the values between which it should fall (the comparison table is also to be found in this dictionary).

3.3. Outputs. This subsystem is necessary in order to be able to evaluate the stored information and in this way be able to control it, and also to make possible a first study. It is divided into two parts: consultations in real time, or individual consultations, and tasks in batch mode.

Among the former are found consultations on each file and dictionary, using the direct and secondary access keys. For example, in the case of the information file

- Entry : a code of B.S.U.-date  
Output: all the available pairs  
variable code  
value
- Entry : a variable code  
Output: all the available pairs  
B.S.U.- date code  
value

Another type of consultations are those that allow the comparison of information: Two kinds of parameters are in play here. On the one hand the B.S.U., groups of B.S.U. or zones for which it is hoped to make comparisons, and on the other the variable or group of variables which make up the body of the comparison. These parameters are defined in subsystems 3.4, Selection and 3.5, Aggregation.

The outputs which can be made in batch can be classified as:

- list
- calculations and statistics
- maps

The reason for using batch processes is found in making a balanced choice between the quality of the output, the cost in execution time and the needs of the method of working.

In all three types of output there has to be a previous definition of the universe. This is carried out through the above mentioned parameters of selection and aggregation.

The different lists which have to be made refer to the contents of the different files separately, to the cross-linking of these in order that any B.S.U. may be exhaustively described (variables, coordinates, definitions, situation, spatial relations, and finally, a third type which will not only be an internal working instrument but rather the exterior presentation of the system in printed form. The contents of this third type do not differ from the others, except in their width, elegance and ease of reading for those who are not initiated in, or do not know well, the system. That is to say that, while in the previous lists the design criteria is the usefulness and compactness of the information, in the latter type the criteria are the transparency and ease of reading for all the different possible users.

The calculations and statistical analyses which have to be carried out in this subsystem are directed to the realization, as has been stated earlier, of previous studies and reliability analyses. The demands must be carried out parametrically and a sophisticated language would not seem to be necessary, since the users of the subsystem will have a good knowledge of it.

The calculations are carried out between variables referring to the same geographical object. The list could include:

- add, subtract, multiply and divide between variables, and between variables and constants.
- logarithmize.
- extract maximums and minimums.
- transform rates into "rankings".
- codify continuous variables.

The statistics which must be made are:

- unidimensional variable numerical descriptions
- unidimensional variable graphical descriptions
- metrical and parametrical correlations, and spatial autocorrelations.
- tabulations
- regression analyses
- factorial analyses

With regard to maps it must be said that, as in the previous case, the universe to be drawn is defined by the parameters of selection and aggregation. The type of maps which seem to be necessary can be made by traditional printing methods, either using characters or needles since it is a question of drawing tonalities rather than limits. The maps which it is expected will have to be made are, firstly, thematic, giving to each delimited geographical object the value of a simple or composed variable. Secondly, choroplethic, showing the interpolations between a few points, for a simple or composed variable, in a given space.

The maps must reflect the labels and lineal objects and points.

3.4. Selection. The parameters of selection in a universe have two sides: the elements which make them up and the information which describes these elements.

With regard to the information, the following two functions must be taken into account:

- identification by code or short label of the original variables,
- and
- creation of new variables using the calculation functions described in 3.3.

With respect to geographical elements or objects the only function which is foreseen is that of identification by code or short label. "Window selection" consisting in defining a universe by selecting all the objects included in a rectangle of which the coordinates of a diagonal are given, is therefore discounted. The reason for this elimination is its small utility in a system like this in which the basic units are few and with little variation in their spatial content (there do not exist geometric objects, rather polygons or zonal spaces).

The selection of geographical objects is facilitated to the maximum. The parameters for selection could be along the lines of:

- all and every one of the B.S.U. which form the required area.
- a zone or group of zones, defining the level of the elements included which it is wished to draw.
- a composition of B.S.U. and zones.

At a general level it must be stated that this selection subsystem will carry out both the extraction of information and geographical references, thereby preparing working files which will be used for output and for input functions. All these functions will allow the same structure of input, which coincides with the structure of selection output. In this way the output functions are converted into reentry functions, that is to say using the same selection (normally a long task), all kinds of output functions may be carried out. Finally it must be said that dictionaries will always be available and that working subsets will not be made.

3.5. Aggregation. The function of this subsystem is the elaboration of information referring to zones from the information referring to B.S.U.

The only parameter which is necessary is the code of the zone which it is hoped to aggregate. Using the Codifier-decodifier Dictionary the variables of each B.S.U. are known, as well as the aggregation function to be applied. Through the Dictionary of spatial relations, the list of B.S.U. which make up the zone can be found out.

The adequate function of aggregation must be defined for each variable since it is not the same at spatial level, for example, if one is dealing with income per capita, or with a mortality rate, or with the number of inhabitants.

Once the calculation of the information referring to the zone has been carried out it is introduced into the information file. The coordinates which compose the perimetre of the zone (based on those of the B.S.U.) must also be calculated and introduced in the reference file.



### III.5. Geographical references and mapping.

The possibility of representing cartographically the stored statistical data requires, in the first place, the digitalization of the boundaries which delimit each B.S.U., in order to make it possible to easily obtain their graphical representation through the output terminals.

This raises, however, the problem of choosing a system of projection which will allow the reader to see which is the geographical space represented and what are its characteristics.

The territorial extension of Europe will never allow it to be represented in its totality through straight projections -those in which the geometrical similarity between the real boundaries of the territory and its representation on the flat surface of the map, but which necessarily cause important differences of scale in the sectors furthest away from the automecoic lines.

In such a case, visual appreciation of the map -when it expresses statistical values corresponding to each B.S.U. through coropletics, will lead to great errors on quantitative estimates since the B.S.U. furthest from the basic axes of projection will be underrepresented.

Therefore, in the cartographic representation of large areas -and it need not be said, in those that cover the whole of Europe, we will have to do away with systems of straight projection and make use of a system of equivalent projection with which -although the B.S.U. furthest away from the automecoic lines will be deformed by the process of projection -equivalence of areas between the real extensions of territory and their graphic expression on the map will be maintained.

The frequency with which we find ourselves in front of cartographical representations of the world and continents in maps in which the countries situated at the extreme latitudes suffer deformations of projections means that no-one will be surprised by this fact.

However, the use of this system cannot be admitted for the representation of reduced areas of groups of B.S.U. situated at the extreme of deformation, since the image produced will not coincide with that which the user is accustomed to seeing of his own area,

which is one with boundaries similar to the real perimetres, obtained by a system of straight projection.

Thus we find ourselves with a double problem:

a) in some cases we have to count on the possibility of cartographical representations of large areas in which the B.S.U. maintain, among themselves and on the map, the same relationship of surface areas as exists between their real areas (and which, for technical reasons of the flat representation of the curved surface of the globe, is only possible with a system of equivalent projection which will deform the boundaries of the areas furthest from the automecoic lines).

b) in other cases we have to reckon with the possibility of cartographical representations of smaller ares, in which the B.S.U. are expressed on the map in the form of boundaries similar to the real territorial limits (an absolutely necessary variant for carrying out cartographical representations of spaces which are normal and known to users through their state maps); this variant will only be possible through the use of a system of straight projection, a procedure which is normally used in the cartographic representations of each country. The use of this system causes, however, a deformation of scale in the sectors furthest from the automecoic lines.

In order to cover these two possibilities, it will be necessary then, to digitalize the geographical coordinates of the territorial boundaries of the B.S.U., transforming them into two transferible values on coordinated axes X and Y in line with a double codification:

- a) that which will allow cartographical representations through a system of equivalent projection.
- b) that which will allow cartographical representation through a system of conformal projection.

It still remains to choose which concrete method of transformation to use for each of these two cases.

Among the multiple possibilities studied the following have been chosen:

- a) for the register of coordinates of equivalent projection, the Bonne Projection will be used, in which the graphical representation of the parallels is realized through equally spaced, automecoic,

concentric circles, and that of the meridians through constantly spaced curved lines, which are automecoic parallels.

b) for the register of coordinates of conformal projection, the UTM (Universal Transverse Mercator) which is increasing in acceptance in many European countries will be used.

The limitations imposed in each case must be fixed in accordance with the angular and scale deformations which one and the other can cause. In our case we have chosen as a basic projection for smaller ares, the UTM. The spatial limits for the application of the system will be:

- a) state limits
- b) representations of inter-state areas which can be included in a 750 km. diametre circle.

In all other cases the system of projection which should be used for cartographical representations will be that of Bonne.

#### IV. SELECTION OF THE CONTENT OF REGIONALIZED INFORMATION. SCOPE AND LIMITATIONS.

##### IV. 1. Regional statistical information. Basic indicators.

In some states -for example the case of Spain- resolving the problems of decentralization and devolution supposes, among other things, resolving the lacunae in the statistical information available -demographic, economic and social- and giving the greatest possible detail about the areas under the regional administrations. Regional statistics are today, in all the states of Europe, an indispensable political and administrative instrument, as well as a centre of interest and the subject of many studies. And they need to be developed autonomously.

The statistical system has as its aim the making available of adequate and coherent statistical information in the shortest time, information on social and economic structures, processes and attitudes, which is intelligible and of easy access. However this statistical

information must be understood in a wide sense as the collection of data and the knowledge of its reliability, documentation on the methods used in obtaining it, and analysis.

The data bank is constituted by regional social and economic indicators which measure magnitudes which are characteristic of economic and social structures and activities. These indicators permit the knowledge of isolated data about population, employment, living conditions, education, health, etc., and about production, trade, investment, etc.

However it is also necessary to be able to integrate the various indicators into a coherent whole which allows the description of the fundamental economic relations between economic agents to be described. This means that it is necessary to have a Regional Accounting which describes the intersectorial relations within the region, and between agents, as well as exchanges with the exterior.

Any system of regional accounts must include the principal indicators of economic activity. The elaboration of production accounts, of those relating to the activity of families and non-profit making enterprises, and those of the public administration allow the principal macroeconomic magnitudes to be quantified, and from these ratios can be deduced through their comparison with population and employment, such as income per capita, productivity, investment rates, and the coverage of the exterior transactions.

A European regional data base will have to contain information and documentation on the following subjects, for which we also specify the corresponding significant indicators:

1. Characteristics of the regional structure of the European States.
  - type and number of regional divisions
  - classification of the regional divisions
  - geographical coordinates of the boundaries and important centres.Possibilities of mapping.
2. Basic regional information referring to:

2.1. Geographical characteristics, in their physical aspects-geophysical, climatic, hydrologic.

- total surface area. Area of canals, lakes.
- area higher than 1,000 metres.
- length of the coastline.
- distance by road to the capital of the state.
- average temperature, humidity.
- rainfall and precipitation.

2.2. Regional wealth, specifying natural and energy resources - land, water, woods, minerals, etc.

- productive land area
  - . cultivated dryland or irrigated according to the types of cultivation.
  - . pastures
  - . woods
- hydrographic balance
  - . resources capacity of reservoirs  
volume of canals
  - . use
- subsoil. Estimated reserves.
  - . petrol
  - . coal
  - . iron
  - . other metals
  - . phosphates
- transportation infrastructure
  - . no of km. of roads, according to the no of roads.
  - . no of km. of local roads
    - main roads
    - motorways
  - . no of km. of the railway network
  - . no of km. of navigable canals and their width.
  - . no of km. of oleoducts.
  - . no of airports, possibilities of classification.
  - . no of ports, length of wharves.

2.3. Population

- total resident population, by sexes
- " " " " , by ages, or by age groups, classified at least in the following.
  - . population below 15 years of age
  - . population between 15 and 65 years of age
  - . population above 65 years of age
- nuptiality rate
- infant mortality rate

determinants of the evolution of the population.

- . birth rate and general mortality.
- . rate of natural growth of the population.
- . balance of immigration and emigration. Inter-regional migrations and emigration abroad.
- . migration within the region (changes in the municipality of residence).
- concentration of the population
  - . population density

- . distribution of the population according to the size of settlements.
- . no of nuclei or settlements according to their size.
- . surface area of the major cities.

2.4. Structure of the active population.

- total active population by sexes.
- rates of activity by sexes
- rates of activity by ages
- rates of occupation by sectors of activity
  - . primary. Absolute and relative values  
For certain regions, classified by fishing, agriculture, mining.
  - . secondary. If possible by different branches of activity.
  - . tertiary. Banks and insurance to be taken separately from public administration -central, regional and local-.
- rate of salaried employees in the active population.
- percentage of workers in enterprises of over 500 workers.
- classification of the population by professions.

2.5. Education.

- No of teachers in primary, secondary and university education.
- No of students in primary, secondary and university education.
- No of institutions of primary, secondary and university education.

2.6. Structure of production.

- Agriculture
  - No of agricultural exploitations
  - No of agricultural enterprises
  - Distribution of the agricultural exploitations according to their surface area.
  - Indicators of the grade of mechanization, no of tractors, combine harvesters, etc.
  - Volume of production, broken down by products or types of products.
- Industry
  - . no of establishments
  - . no of enterprises
  - . distribution of establishments according to the number of workers employed.
  - . the most important great corporation.  
Specifying the type of product they manufacture.
- Services
- Commerce
  - . types and distribution of commercial establishments.

- .. self-service
- .. supermarkets
- .. hypermarkets
- .. department stores
- .. shopping centres

- transports

- . total no of industrial vehicles
- . " " " coaches
- . " " " private cars
- . " " " motorcycles

- communications

- . personnel employed in the postal service
- . volume of correspondence handled by the post office
- . No of post office giros
- . No of telephones installed
- . No of telegrams sent
- . mass media
  
- .. no of regional daily newspapers, and no of issues printed.
- .. no of radio stations of regional character.
- .. no of television stations of regional character.
- .. no of cinemas and theatres.

- tourism

- . no of hotels according to the no of their rooms.
- . no of camping sites.

- health services

- . no of persons employed in health care
- . no of doctors per 1,000 inhabitants
- . no of health technicians
- . no of hospitals per 1,000 inhabitants
- . no of clinics per 1,000 inhabitants
- . no of hospital beds per 1,000 inhabitants

- Banking services

- . no of banking entities (state and regional)
- . no of banking offices ( " " " )
- . no of employees.
- . assets

- Stock market

- . Stock exchange

- Public Administration

- . No of employees in central, regional and local administration
- . Budgets of the different State administrations, local corporations and Social security.
- . Investment. Income and current expenditure.

2.7. Despite the differences in specifications and definitions, other relevant information includes:

- Production

- . gross value added
- . total production by goods and economic sectors
- . use and finality of production (broken down by sectors)
- . social services

- Income

- . income per capita
- . other indicators
- . creation of income and its distribution: functional and personal.

2.8. Living conditions and environment

- standard of life. Cost of living
- distribution of dwellings according to their type
- sanitary conditions
  - . distribution of dwellings according to no or absence of baths.
  - . dwellings without access to running water
- Facilities of dwellings
  - . telephone
  - . washing machine
  - . refrigerator
  - . central heating

2.9. Cultural and socio-linguistic variables

- language
  - . no of population that speaks a majority language.
  - . no of population that speaks a secondary language.
  - . no of population that speaks a third language.
- religious observance
  - . no of population that are catholics, protestants...
- election results
  - . levels of participation in general elections
    - elections regional "
    - municipal "
  - . parties or tendencies with most votes.

3. Basic information on inter-regional and international movements.

3.1. Population migration



- population migration according to region of procedence and region of residence.
  - migrations of the active population, according to region of procedence and region of destination.
- 3.2. Inter-regional flow of goods and interchanges of services.
  - 3.3. Inter-regional and international financial transfers, flows of money and income.
4. Data on the economic situation
    - 4.1. Evolution of wholesale prices  
retail "
    - 4.2. Changes in wages and salaries.
    - 4.3. Level of unemployment.
    - 4.4. Degree of use of productive capacity.

#### IV.2. Difficulties and limitations of regional statistics.

Having explained the subjects and statistical indicators which are of interest, reference must now be made to the problems raised by the elaboration of Regional Statistics:

The separation between activities carried on within and outside the region by private enterprises which have establishments in different parts of the state, and do not keep separate accounts of their operations or activities, for each establishment. The multiregional structure of such enterprises obliges the statistician to take as his unit of observation the establishment and not the enterprise, situating himself at a level which is not that of centre of decision nor the accounting unit.

The regionalization of economic activities which have a centralized character, especially communications, financial services and certain public services. The regional distribution of data on production and gross value added in sectors such as energy production and transports is nor viable if supplementary elements are not available.

Frequently estimates of production and consumption in sectors which are not regionalized are made on the basis of more or less representative indicators of the relative weight or part which the region has

in the total production and consumption of the state. Calculations derived from the pro-rata reduction of national data according to the size of the magnitudes employed as indicators are based on the assumption that the characteristics of the production, consumption and income of the region are the same as those of the national average, when however, it is the regional variations with respect to the national average which regional statistics should be pointed out. The direct method, using specific surveys in the regions, could partly resolve this problem, despite the practical problems which it raises.

Another task to add to the above is the regional accounting of the income and expenditure of the public sector and the central administration; and also the calculation of the costs of the central administration for each of the regions. The fundamental reasons explaining the backwardness in this field are the lack of political will, coupled with the technical complexity of the task.

Referring to the exterior sector, the commercial transactions of goods and services between regions and the rest of the world are difficult to evaluate since there do not exist registers of the exterior flows from the region.

The difficulty of obtaining minimally reliable information on the current operations of the domestic and empresarial economies, those of the public administration and the exterior sector, causes problems in another important aspect: knowledge of the channels of finance and investment.

The indicators and data arising from surveys and estimates on a state basis cannot be applied at regional level since the samples chosen in the carrying out of such surveys and estimates are not representative nor correct for each of the different regions, which means that the process of elaborating these estimates should be begun again on new lines. In the case of input-output tables, for example, which are useful in the representation of intersectorial relations and interchanges, the general structure of inputs is known from statistics of national samples, while the productive structure of the regions differs on this very point from the national average.

An additional difficulty in the Project we are studying is that of the homogenization of the regional statistical indicators. In the first place there exists the problem of establishing the definition of the information to be collected, and afterwards the elaboration of the data collected to the pre-established criteria. In every state there is a different statistical methodology, related to the particular context. Moreover socio-economic phenomena are not identical and therefore an identical measure for all states could only be found after much research and repeated tests. However, despite these differences, there is a minimum of coherence (nomenclators, codes, etc.,) which allow the task to be begun at least. There are certain areas where there is more general agreement, because of longer experience in these fields (demography).

#### IV.3. Regional statistical sources

The available statistical sources can be placed in two groups: regionalized national statistics and those that are strictly regional. Both can be the result, either through specifically statistical operations, censuses or surveys, or through the use of administrative documents or files for statistical purposes.

The most numerous statistical sources which give the greatest regional information are the regionalized national sources:

The population censuses give very detailed information on small scale geographical areas. They are fairly uniform in the type of information they contain, and especially standardized in their demographic aspects. Moreover, in all the European countries, they are carried out regularly.

The numerous agricultural censuses offer very complete and detailed information. Often, however, they have not been adapted to take into account structural changes which have taken place in the agrarian sector, for example, mechanization or the use of chemical fertilizers.

There do not exist important regular censuses of the industrial,

commercial and services sectors. However the establishment of exhaustive surveys or samples by enterprises and entities is at an advanced stage at the present.

The strictly regional statistical sources are scarcer and less regular. Their irregularity and experimental character make their treatment difficult for various reasons: difficulty of access, divergences in the methods and techniques employed in the regions.

In consequence, given the lack of tradition and common experience of regional statistics, little advance has been made in the standardization and homogenization of the strictly regional statistical sources. However these regional sources allow the quantification of the value of the indicators which the regionalized national statistical sources cannot reflect in any special way because of their nature, referring to regional economic activity and conjunctures.

The collaboration, contributions and judgements of the members of the I.A.R.U.S., as correspondents in different countries of the project will be fundamental and indispensable for the homogenization and treatment of these properly regional statistical sources.

#### IV.4. A first evaluation of the statistical sources.

The different regional divisions used by the different statistical organisms of the European states -and the lack of knowledge of the possible effects of this difference of criteria- as well as the lack of antecedents for a regional database for all Europe, impede the valuation and estimate of how far the plan of basic information outlined on pp. 35 to 40 can be carried out.

The design of the project will have been little explained if only its objectives and possible difficulties are outlined. An evaluation of its viability is necessary in order to design a first methodological scheme of the work and to outline the first objectives.

To this end the analysis of a statistical publication of census type, common and general in most states, has been considered useful. The censuses appear to be the most adequate instrument, and that of greatest use in attempting to produce broken-down information.

At the same time yearbooks, as publications which contain information taken from diverse sources, including censuses, and designed for the divulgation of information, are more standard and stable. In the documentation centre of the I.N.S.E.E. in Paris, access was had to yearbooks from recent years.

The comparison of the regional statistics contained in the annuals of twenty-one European states shows a greater profusion of broken down data by regions in stock magnitudes, taken from censuses or from ministerial statistics. However regional data on industrial structure and activity, on the economic conjuncture, on the exterior flows of goods and services, and on capital transfers, are scarce.

Having carried out the task of comparing the twenty-one annuals, we can say here that the main socio-economic indicators to be found in the greater part of the annuals, re-ordered according to the list on pp. 35 to 40 are:

- 1.- Characteristics of the regional structure of the European states.
  - type and number of territorial-administrative divisions.
- 2.- Basic regional information referring to:
  - 2.1.- total surface area
  - 2.2.- total area of land under cultivation
    - . cultivated according to types of cultivation
    - . pastures
    - . woods
  - transportation infrastructure
    - . n° of km. of local roads
    - . n° " main roads
    - . n° " motorways

- . nº of km. of the railway network
- . nº of km. of navigable canals
- . nº of airports
- . nº of ports

2.3.-

- total resident population by sexes
- determinants of the evolution of the population
  - . birth rate and general mortality
  - . rate of natural growth of the population
  - . balance of immigration and emigration. Nº of emigrants and immigrants by regions and countries of procedence and destination.
- concentration of the population
  - . population density
  - . distribution of the population according to the size of settlements.
  - . nº of nuclei or municipalities according to their size.

2.4.-

- rates of activity by sexes
- rates of occupation by sectors of activity

2.5.-

- nº. of students in pre-school, primary, secondary and university education.
- nº of institutions of pre-school, primary, secondary and university education.

2.6.-

- Agriculture
  - . nº of agricultural exploitations according to size
  - . distribution of the agricultural exploitations according to their surface area.
  - . total of hectares according to the size of the exploitations.
  - . nº of tractors and agricultural machinery.

- . quantity of fertilizers per hectare
- . census of herd animals
- . annual agricultural production by types of products.

Services

- . transports
  - .. total n° of private cars
  - .. " " " motorcycles
- . tourism
  - .. n° of hotels
  - .. n° of camping sites
- . health services
  - .. n° of persons employed in health care
  - .. n° of hospitals
- . communications
  - .. mass media
    - ... n° of radio stations
    - ... n° of television stations
    - ... n° of cinemas and theatres

2.7.- No information at all.

2.8.-

- n° of dwellings according to whether they are principal or secondary residences or are empty.

2.9.- No information at all.

3.- Basic information on inter-regional and international movements.

3.1.-

- population migration according to region of procedence and region of residence.

3.2.- No information at all.

3.3.- No information at all.

4.- Data on the economic situation.

4.3.- Rates of unemployment by sexes.

The previous items, though perhaps small in number could given their importance and immediate availability, however constitute a first block of information in the European regional database. This homogeneous and comparable information constitutes a framework to which reference can be made when inserting other regional information which is not at present available. Furthermore the existence of this general data is a guarantee of viability. If this was not the case, if there did not exist comparable information at the level referred to above, the horizons of this project would be very different.

V.- 1.- Organization and phases of the project

A basic pre-requisite for the carrying out of this project is that it be linked with persons throughout Europe, through the I.A.R.U.S.

V.1.1. Organizational Structure

We consider that the best way of organizing the work to be carried out is by distributing it between the following participants:

a) Permanent secretariat

This undertakes the tasks of coordination and promotion: it sends questionnaires to correspondents, organises consultations with specialists, manages the information received, designs the methodology of the work, etc.

It will be a team comprised of a technical expert, qualified in regional research and capable of directing a meeting on methodology, making contact with statistical centres in the European states, participating in the information design, etc., and by a multilingual secretary.

Their work will be part-time but constant.

b) Advisory council

This will meet periodically and follow the march of the project. It will take responsibility for the direction of the project (ad honorem).



c) Occasional consultations

These will consist of very specific consultations on subjects demanding deeper study, with well-qualified persons. For example, the first list of information to be demanded, the pre-design of the codification system and of the information system, etc.

d) Correspondents

These will be technically qualified persons from each State, the greater part of them members of the I.A.R.U.S., who will facilitate information, (along with the necessary explanations), either directly or through the collaboration of others, and will eventually be disseminators of the results within their geographical area. The existence of these correspondents will make possible the realization of the project through the knowledge that they bring to it and their access to the available statistical sources.

V.1.2. Phases of the project

0.- File of persons and institutions connected with regional themes.

1.- Selection and contacting of correspondents by the Secretariat.

2.- Study of the information demanded.

The secretariat will undertake the necessary consultations for the elaboration of the final questionnaires. These consultations will be with experts (individual advice), and with the correspondents.

The advisory council will discuss and be responsible for the questionnaire.

The questionnaires to the correspondents will revolve around three types of problems:

- the regional divisions in vigour within each state.

The information that will be collected on them

A first questionnaire will formulate questions to confirm the selection of the basic spatial unit studied.

(B.S.U.), and demand information on already completed work for its cartographical computation.

- the regionally based statistical sources (mainly the censuses in the first phase).
- the statistical information, taking into consideration the indicators in the list on pp.44 to 46 to see what level of territorial aggregation suggests itself. It will take into consideration the indicators in the list on pp. 44 to 46 and the years in which this information is covered, beginning with the period posterior to the Second World War.

The extension and complexity of the information demanded and considered in these three sections leads to the thought that the surveys should be periodical, continual and not too extensive. The best technical solution would be progressive thematic questionnaires beginning with the most basic aspects, which are the easiest to analyse and study.

In the measure that general information on the socio-economic structures of the basic spatial units is collected, the posterior questionnaires can be evolved, using the experience and results of the previously formulated questions, profiting from the successes and errors of the preceding questionnaires.

To conclude, the systematization and progressive nature of the questionnaires, as well as the continual examination and criticism of their design, content and results is of great relevance, given the complexity of the aims of the project.

### 3.- The design of the form of information storage.

The Secretariat will seek the necessary help in determining a system which will allow the following to be carried out with agility:

- store the numerical, cartographical and documental information on the B.S.U. and administrative macroregions (in those cases where information on the B.S.U. is not available).

The analysis of the information received will be a delicate task and one of great importance since it is certain that problems of interpretation by the correspondents will arise.

The Secretariat will have to maintain a continual control over the information collected and that already available in order to give

- retrieve any of the information.
- aggregate numerical information at spatial level, and manipulate it for statistical purposes.
- mapping.

#### 4.- Analysis of the information received

The Secretariat will study the limits and definitions of the questionnaires and suggest the pertinent consultations with correspondents.

The analysis of the information received will be a delicate task and one of great importance since it is certain that problems of interpretation by the correspondents will arise.

The Secretariat will have to maintain a continual control over the information collected and that already available in order to give account of the situation to the Advisory council.

#### 5.- Storage

The Secretariat will be responsible for the codifying and translation of the information received, as well as its depuration, and will supervise its automation. It will issue correspondents with the listings and tabulations of the information received, so that they can control and follow it.

#### 6.- First exploitations

The Advisory Council and the Secretariat will define the first exploitation of the information and will analyze its quality and realibility. The suggestions of the correspondents will be taken into account.

#### 7.- Preparation of publications

The project will create an information file. The promoting institutions will establish the criteria for its use, will design publications, etc., and will consider the need to begin a second stage of the collection of information.

It should be emphasized that the information file offers great versatility with respect to applications deriving from it or which can be extracted from it, allowing it to meet the needs and necessities of publishers with the minimum of effort.

Although it is foreseen that the project will take two years, it should be taken into account that the operation and practice of collecting information could offer some individual results previous to the end of this period, the fruit of progressive dedication to certain themes: demography, resources... and in different presentations: numerical data, maps, comparative studies, etc.

To facilitate and promote a profound knowledge and also the divulgation of the regional fact from all points of view the diffusion of information is indispensable.

Unelaborated basic information, directed towards giving a greater knowledge of a particular region, or on a group of regions suffering a common problem.

Articles, documents on specific themes, comparative historical or present day studies are all original contributions and elements for research which are indispensable and which should be adjoined to certain exploitations and explorations of the database. Use should be made of the line of diversified publications, which make use of the stored information and the capacity to manipulate it automatically.

- according to the geographical spaces selected
- according to the public to which it is directed  
(statistical divulgation or introductory works for students, for the general public, aimed at politicians, enterprises, etc.).

This divulgation or the edition of information will occupy itself with those problems whose principal focus is spatial. Since its aims and descriptive or explicative uses are numerous we are not going to consider the full range, but will instead advance some cases of possible studies.

V.- 2.- Some examples of analyses where regional information is fundamental.

- Characteristics of the structure and functioning of the economic space considered.
- The role of certain privileged activities in the regional space.
- The adaptation of the productive activities, their role in regional development: motivating or induced activities.
- Orientation of agriculture: level of commercialization and especialization in agrarian production.
- Grade of specialization and diversification in industrial activity.
- Studies of the most progressive industrial subsectors.
  
- Disparities between the above mentioned space and other regions of the state, or other parts of Europe.
- Inequalities in levels of income, consumption, salaries, age, structures of the population, forms of urban concentration, systems of cities, differences in the rates of general and specific activities, etc.
  
- Relations between the region studied and the economic area that it belongs to.
- The role of the region in the development of the state, its economic autonomy, and its role as motor or brake on the economic activity of the adjacent regions.
- Its participation in the European economy. Its relationship with other regions or European countries.
- The consideration of the same aspects is possible from a dynamic perspective if temporal series can be collected.