

TABLE OF CONTENTS

Page

UNITED NATIONS

Centre for Housing, Building and Planning

Physical Planning and Economic Planning: Introductory Remarks

1. National planning: definition and nature 1
2. Physical planning: traditional economic units 2
3. Physical planning: difficulties arising from quantitative methods 2

PHYSICAL PLANNING AND ECONOMIC PLANNING IN

4. Long-term planning: the case for territorial considerations 3
5. National planning: a new approach 5

NATIONAL DEVELOPMENT

CHAPTER II

Prepared for the:

New physical planning and economic planning

United Nations Centre for Housing
Building and Planning
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6. Two "moments" in the development of physical planning 6
7. Economic analysis of the use of physical resources 6
8. The economic reconstruction of various aspects for the development of physical planning 8

Interregional Seminar

on Physical Planning for Urban, Regional and National Development

9. The spatial contribution of both physical and economic aspects 11
10. Coordinating the spatial layout of urban structures 14
11. Urban structure as a strategic instrument of the national plan 15
12. An Italian experience in programming urban structures 17
13. Accessibility instruments as a strategic instrument of the national plan 21
14. Specialization as instrument for optimum accessibility: transport 22
15. The main urban experience applied to programming a transport network 24

TABLE OF CONTENTS

Page

CHAPTER I

<u>National "physical" and "economic" planning: introductory remarks</u>	1
1. National planning: definition and nature	1
2. Physical planning: traditional economic aims	2
3. Physical planning: difficulties arising from quantitative methods of choice	3
4. Economic planning: the need for territorial considerations	5
5. Economic planning: inadequacy of a regionalization based on pure accounting	6

CHAPTER II

<u>How physical planning can be integrated into national economic planning</u>	8
6. Two "moments" in physical planning	8
7. Economic analysis at the moment of planning physical resources	9
8. The economic coordination of various projects for the exploitation of physical goods	10
9. The spatial coordination of the various economic projects	10
10. The spatial coordination of both physical and economic projects	11
11. Coordination criteria: spatial balance of urban structures	14
12. Urban structure as a strategic instrument of the national plan	16
13. An Italian experience in programming an urban structure	17
14. Accessibility (transport) as a strategic instrument of the national plan	21
15. Specialization as an instrument for optimizing accessibility (transport)	22
16. The same Italian experience applied to programming a transport network	24

	Page
<u>National "physical" and "economic" planning: introductory remarks</u>	
CHAPTER III	
<u>A logical process in national planning</u>	
17. Current ideas about national economic and physical planning	27
18. A logical iterative process for integrating the two types of planning into one	28
19. Illustration of the iteration pattern	28
20. "Concrete" economic planning	32
CHAPTER IV	
<u>Some final comments on the present state of experiences and the part played by UN programmes</u>	
21. The still backward state of the experiences	34
22. UNO's interest in the problem during the first Development Planning Decade	35
23. Some proposals for participating countries	37
24. Some proposals for UN activities	38

In national planning, the idea of the best use of resources implies a subjective appreciation of the needs and the welfare which the planned society attempts to satisfy as far as possible. Since we are dealing with the nation, and the needs or the welfare are considered at the national level, an attempt is made to add up the needs and living-standards of single individuals or families or social and

CHAPTER I

National "physical" and "economic" planning: introductory remarks

1. National planning: definition and nature

National planning may be defined as a coordinated set of actions which concern a specific subject - the nation - and which are designed to bring about the best temporal and spatial use of a given group of resources 1/.

This definition of national planning can today be made to include the idea of "development". A "development" strategy which is not a simple reference to the growth-rate of the national product (the statistical meaning of which is a matter of widespread controversy at present) implies the discussion and definition of national objectives. "Development" exists not only of itself (there is moreover no objective way of measuring it) but also in relation to the values and objectives to which it is applied. To achieve those values and aims, every national community has certain means, which are, by definition, limited. As we have already said, planning consists of that coordinated set of actions which brings about the best utilization of these means.

In national planning, the idea of the best use of resources implies a subjective appreciation of the needs and the welfare which the planned action attempts to satisfy as far as possible. Since we are dealing with the nation, and the needs or the welfare are considered at the national level, an attempt is made to add up the needs and living-standards of single individuals or families or social and

professional categories or regional communities, in order to make an overall national evaluation, adding, if need be, the needs and the welfare of the nation per se. This is what has always been known as the "national interest".

From this viewpoint, any definition of the planning of the national development in "economic" or "social" or "physical" terms is arbitrary; it can be derived from the nature of the major aims laid down in the preliminary phase of planning and from the relative importance that a given different approach may have with respect to those aims.

However, all national planning is at one and the same time social, economic and physical, and each of these aspects is an essential aspect of it. Since we are attempting to establish a close connexion between the economic and physical approaches to national planning, the introductory paragraphs which follow will explain how in fact traditional physical planning is conditioned by economic evaluations, and how traditional economic planning is conditioned by the evaluation of physical space and its qualifications.

2. Physical planning: traditional economic aims

By its very origins, all physical planning has always been elaborated with a view also to aims of an economic nature.

For example:

- maximum efficiency of economic activities carried on in the territory;
- the elimination of waste arising ~~from an~~ irrational juxtaposition of these activities, but also from their insufficient integration within the territory;

- maximum accessibility (in terms of time and transport costs) for consumers to consumer goods and services of every kind (physical goods, industrial products, natural resources and cultural goods and services) and vice versa;
- optimal functioning and maximum productivity of the transport system as a producer of services, etc., etc.

In other words, each physical planning project has always sought and proclaimed that the solutions it offers guarantee the greatest possible economic advantage in the given conditions.

3. Physical planning: difficulties arising from quantitative methods of choice

In addition, physical planning has tried to express this economic advantage in terms that are as objective as possible, valid for everyone and quantified. There have recently been some remarkable developments in the use of econometrics and operational research techniques in the field of physical planning, especially at the level of town-planning decisions 2/.

Nevertheless, physical planning is still mainly based on the application of qualitative criteria.

The limited application of econometric techniques, and especially of mathematical optimization methods in this field is mainly due to the difficulties encountered in making the constraints explicit and in formulating the functions-objectives of physical planning at the urban and regional levels, which is where it has most frequently been applied.

In the strictly economic-productive field, the function and aim of a micro-economic unit (e.g. a firm) can be quite well expressed by the parametric relationship of a precise (and measurable) phenomenon to the rest of the clearly ascertainable (and measurable) phenomena. By analogy, it has been thought possible to formulate the function-objective itself at the level of a national economic-productive system from which certain phenomena are extracted - at the risk of making a statistical simplification that may be meaningless - from among the measured or measurable figures of national accounting: national product, employment, global value of imports and exports, consumption, investment, etc. This is how macro-economic planning was first conceived 3/.

In the spatial dimension, it has been very difficult to elaborate a function-objective, not only on account of the complexity of the variables in question but also because the simplification of the phenomena, which is relatively easy in production planning, calls for close attention to the collective interest and to "social preferences" when it comes to spatial programming. Moreover, collective preferences are much less easily defined in the case of spatial organization than in that of production, where they may be taken as the sum of individual preferences. Consequently, if a function-objective can be determined "technocratically" in economic planning, physical planning presents a range of choices, either in the selection of the variables or in their evaluation, which calls for reference to a political planning body for making such choices, without which mathematical planning methods are inapplicable. These circumstances are a first cause for delay in the

application of these methods to physical planning, a delay which is greater still in countries without a political planning body.

Another cause for delay, which stems directly from the first, is the fact that techniques suitable for evaluating the costs and profits of urban services are not as well developed as those used in the field of the production and consumption of physical goods 4. Indicators of the economic satisfactions or of the "success" of an activity - as in the case of the product or the profit in the productive sector - expressed in monetary parameters have only been slightly studied, and it is difficult to express data about urban life and services in terms of monetary parameters 5.

4. Economic planning: the need for territorial considerations

However, if macro-economic planning is not to remain a statistical exercise, it must be expressed "in space" and must take account of regional conditions.

In the case of economic planning of an "imperative" character, geographical localization of all planned activities is essential. But even for economic planning of an "indicative" nature (in which one supposes that decisions about location will be taken by both the private and public sectors on the basis of prices and costs determined by the market, and, more generally, in relation to the advantages and drawbacks of each site for the firm or service) one must have "indications" about the territorial suitability from the collectivity's point of view.

These spatial indications of an economic plan are useful:

- a) as a guide-line for a policy of direct investment by the public sector;
- b) as a guide-line for the public promotion of private initiatives and choice of locations (incentives, tax facilities, etc.);
- c) as a function-objective of optimization sub-models for specific sectors or regions 6/.

5. Economic planning: inadequacy of a regionalization based on pure accounting

It is not enough to make a spatial projection of an economic plan by mere "regionalization" of macro-economic planning, although this type of regionalization is already quite useful:

- a) for drawing up a table of figures showing the main objectives of balance for large areas of a country, on the basis of which one could:
- b) discover whether the regional development resulting from the various regional plans, and above all the spatial projections of national physical planning, can be reconciled with the general aims of balance.

In fact, a pure econometric regionalization of the plan can be inspired by various aims. For instance:

- 1) The aim of maximizing the national product without concern for the effects this will have on the products of the various regions.
- 2) The aim of maximizing the product of each region.
- 3) The aim of equalizing regional per capita product.

However, any policy of regionalization based on quantitative aims of this kind is incomplete and defective 7/. It can be

corrected if it is realized that the national product refers not only to all the goods and services produced expressed at market price in the national economic account but also to a series of economic "potentials" (potential goods and services) which the choice of certain investments could bring into being.

One aim of a regional policy conceived in this light could be to maximize the "potential" national product. The "potentiality" concept includes:

- a) Maximum valorization of the "physical" resources of the territory.
- b) Evaluation of the costs and benefits of partial spatial projects.
- c) Evaluation of the social costs and benefits of certain projects connected with the territory which reflect certain specific national collective preferences.

In choosing the maximization of the national product as the basic objective of a regional policy, we are qualifying in more appropriate terms the evaluation of the national or regional product itself which is to be maximized.

Such a qualification can only be reached with the help of physical planning. But what kind of physical planning? The answer to that question is the subject of this report, which is intended as an introduction, and which confines itself to giving an outline of a simple conceptual procedure of planning. We have deliberately avoided analysing the problems of the connexion between physical and economic planning in such fields as:

- planning "techniques" (application of mathematical methods, statistics, graphs, etc.);
- procedure for the application and execution of plans;
- instruments of economic and institutional policy.

CHAPTER II

How physical planning can be integrated into national economic planning

6. Two "moments" in physical planning

Physical planning (or, if we accept the idea of an integration of physical and economic planning, the spatial or territorial dimension of planning per se) intervenes at two basic moments:

- 1) The moment when one analyses and plans those physical resources of the nation which are permanent and fixed.
- 2) The moment when one must decide upon the new location of economic and human resources (new sites).

In the first case, the spatial dimension is given: it is intimately linked to the very nature of the resource whose economic use is being planned. Whether it be water use (natural water, and not industrial water as in the case of desalination), the exploitation of minerals, or of soil, or of forests, or coasts, or mountains, or archaeological sites, or historical monuments, or the beauties of nature, or flora or fauna; or whether it be the organization and exploitation of existing urban concentrations, industrial plants, infrstructures, etc. - all the results are already regionalized in advance and the economic yields accruing to the nation are distributed over the territory in a predetermined fashion.

In the second case, the spatial dimension is indeterminate: we can plan an economic resource without worrying about spatial constraints. When one plans the growth-rate of investment or production in an industrial sector, or in housing, schools, shops, roads, rail-

ways, etc., and even more when one plans the formation of incomes, capital or savings, the distribution of wages, financing, credit, etc., one can in principle avoid (and often in fact does) any determination of the spatial destination. It is not at all implicit. However, since "free" economic resources must nevertheless originate somewhere, must depend upon fixed and more or less localized capital which has formed them, it would be useful to know in advance how far the locations to be chosen are already predetermined or to what extent future locations deriving from existing sites may predetermine the future formation of resources. All this is already an essential qualification for a national economic plan.

If the spatial dimension is determined in advance, the location of resources constitutes a constraint on the calculation of the optimization of its use. If the spatial dimension is indeterminate, the location of resources is a function of the other objectives of maximization.

7. Economic analysis at the moment of planning physical resources

With regard to planning a nation's physical resources, the analysis of the economic potentialities of these is essential when it comes to formulating a national economic plan. This analysis must be undertaken for the entire territory of the country; it will lead to a definition of projects for the exploitation of available resources, and will include a study and a careful estimate of the costs and advantages of each project taken separately, and again in its public-interest aspect.

In other words, one must determine how much each project can contribute to the development of the national product and in what alternative conditions the size of that contribution might vary.

At this point, therefore, an economic estimate is closely bound to physical planning.

8. The economic coordination of various projects for the exploitation of physical goods

Evaluation of the alternative conditions which could modify the contribution each project can make to the growth of the national products leads us to coordinated analysis of the various projects and the establishment of a scale of priorities amongst them.

Not only are they interconnected:

- a) by the amount of economic resources available for their implementation (an amount which sets a reciprocal constraint on each of them); but also,
- b) by the fact that individual projects imply external economies for the other projects, thus multiplying the positive effect of the contribution each project makes to the growth of the national product.

9. The spatial coordination of the various economic projects

As for the planning of economic resources, it must be realized that these essentially mobile resources imply, when a

decision is taken about their siting:

- 1) a means of improving the conditions of their exploitation; because many location factors affect productivity, the profitability of infrastructure investment, of industrial equipment and of public services;
- 2) a method of improving their efficiency in terms of user satisfaction (e.g. a commercial service which may be advantageous to a firm which has a large market at its central site may, for that very reason, cost consumers too much if that site is located too far from dwelling centers).

The optimal spatial combination of the interests of suppliers of goods and services on the one hand, and consumers on the other, (account being taken of constraints imposed by the national interest with regard to the exploitation of physical, natural and cultural resources therefore constitutes the basis for the optimization both of the national (potential) product and of the regional product, and for a reconciliation of these two aims. Such a combination is made possible by the spatial planning of economic resources.

10. The spatial coordination of both physical and economic projects

The spatial planning of economic resources (i.e. their location) is intended, therefore, to give the best combination for the firm (the supplier of goods and services) and for the consumer (the user of those goods and services), thanks to a spatial coordination of investment projects.

This coordination applies to all categories of economic activity which has to be located, on the basis of the functional interdependence of the various productions from the production and

consumption viewpoints. This spatial coordination also includes predetermined spatial investments. The spatial coordination of investments may be conceived through a pluridimensional model of functional interdependences, which can be roughly divided into systems and sub-systems. The main systems are:

- 1) interdependences among producers: here we optimize functional relationships from the standpoint of productive efficiency (in other words, these are spatially analysed inter-industrial relationships);
- 2) interdependences among categories of consumers: here we optimize functional relations from the standpoint of consumer interests (these, too, are consumption interrelations seen from a spatial viewpoint);
- 3) interdependences between production activities and consumption categories.

In the first system, for instance, there are interdependences:

- between sectors of activity such as agriculture, industry, commerce services and public administration;
- within each sector, between branches of activity or between products within each branch;
- between the primary factors of the productive process: manpower, capital, technical and managerial skills;
- between infrastructure and industrial activity.

In the second system:

- between private and public consumption;
- between income distribution and private consumption;
- between certain categories of durable consumer goods (houses, cars) and the consumption of certain infrastructures and of public services (roads, electricity, etc.);

- between consumption of means of transport and organized leisure;
- between dietary systems and the public health situation;
- between forms of housing and "social participation", etc.

In the third system we find the most complex and least known interdependences, such as:

- between production and education (envisaged as public or private consumption);
- between commercial organization and consumption patterns;
- between the organization of public services (schools, health, administration) and user satisfaction;
- between technological development and social and professional consciousness.

With the coordination of all these functional interdependences at the spatial level, traditional "physical planning" is turned into a spatial dimension of planning per se.

Spatial coordination aims at optimizing the functioning of the various relationships in terms of:

- a) maximum productivity of firms (a firm being taken as any sort of organization producing goods and services, including public services, and productivity being taken as the relationships between the quantities of inputs and outputs);
- b) maximum satisfaction (or "utility") to users and consumers either in terms of the quantity and quality of goods and services, or in terms of facility of access or acquisition.

In order to maximize the magnitude either of the productivity of firms for each category of product, or of the utility to consumers (once we have the appropriate indicators), we can proceed to apply econometric techniques and pluridimensional mathematical formalisations.

11. Coordination criteria: spatial balance of urban structures

A spatial economic balance is theoretically achieved (in the case of location problems) when a compromise is found between user interest and that of the producer of goods and services 8/.

User interest means that the user can obtain goods and services as near to his home as possible, or, if needs be, to find near at hand the goods and services he most often needs (the others can be all the less accessible the less frequently he uses them).

Producer interest means that the facility is located in the largest possible population centre, so as to obtain the maximum advantage from the numbers of available customers.

Collective interest implies the minimization of the real cost of goods and services and in their being located as near as possible to the users, while taking account of the need to ensure each business a market which corresponds to its optimum dimension.

The ideal pattern of a balanced urban structure, founded on these criteria, would be one that "economized" transport to the maximum and which respected as far as possible the optimum dimensions of the various "spatial" markets.

For goods that are not mass products, and for all services defined as "urban" and which serve the local population in their daily needs (schools, hospitals, newspapers, leisure

activities, shops, banks, cultural institutions, etc.), the ideal solution for an urban structure would see to it that new activities were not developed in the larger towns until the smaller ones had been saturated with goods and services corresponding to their size, without, however, imperilling the optimum dimension for the production of these services.

The ideal solution tends however to be modified in favour of the larger towns, because, distances being equal, people from a centre situated between two towns will tend to gravitate towards the larger of the two. Consequently, the larger towns tend to attract an increasing share of urban functions, to the detriment of the smaller ones.

In addition, the "rare" services which a town can provide tend (with increased living-standards, income, spare time and cultural and intellectual interests) to become less and less "rare" as regards the frequency of their use - for instance theatres, "good" films, concerts, lectures, exhibitions, shop-windows of specialized stores, research centres, libraries, seats of learning, and institutions or other centres of participation in political, social and cultural life.

It follows that proximity to large cities will play an increasingly important part in private and collective opportunity calculations, as compared with the advantage of total saturation with services in those places where they already exist.

Finally, "external economies" due to integration tend to increase where services are agglomerated, despite the negative

effects of such agglomeration.

Consequently urban concentration become a factor for well-being, which must be organized and planned to the full, both from the viewpoint of the enterprise supplying "urban" services and from that of the users.

The spatial distribution of urban structures at the national level is one of the indispensable contributions that physical planning can make to the national economic plan by orienting it towards adequate quantification of potential economic development.

However, one must evaluate the national benefit that would result if all citizens had equal and rapid access to goods and services which, at present, are only available to a small minority.

12. Urban structure as a strategic instrument of the national plan

The previous paragraph has explained that the aim of physical planning is to create spatial zones in which there is an optimization of the relationship:

Quality and cost of service

its accessibility

This involves the simultaneous optimization of:

- satisfaction (expressed in terms of value) produced by higher forms of urban services for those who use them;
- the productive dimensions and integrations of the various enterprises providing these services.

Since higher forms of urban services are only available today in metropolitan agglomerations (on account of the dimensions required), the aim of planning is to divide the territory and the population into spatial zones of the "metropolitan" type, which one can call "metropolitan cities" or "city-region".

It is within the "metropolitan city" that we can measure and compare the level of certain urban services of a lower type between the different zones of the city; and it is between various "metropolitan cities" that we can compare the level of higher types of services. The dimensions and needs of the "metropolitan city" to be planned within the frame of a national plan are also a function of preexisting locations and the geographical morphology of the country concerned.

13. An Italian experience in programming an urban structure

These criteria inspired a study carried out by the Development Planning Center of Rome at the instigation of the Italian Government (Ministry of Economic Planning). The results of this study were incorporated in a document now being studied by the Italian Parliament, intitled Document of Options, which explains the main choices governing the preparation of the next five-year plans (1971-75 and 1976-80) 9/.

Broadly speaking, the study was an attempt to formulate guidelines for the distribution of the future population of Italy in metropolitan cities, which can attain a level of higher types of urban services needed for the well-being of all citizens

without exception, at a minimum cost and with the highest functional and operational efficiency of the services themselves; and above all, in the Italian context, without destroying the traditional urban heritage which represents a real economic wealth, even if it has not so far been included as positive element in the national product.

As in many other countries, the urbanization taking place in Italy at a ~~accelerated~~ pace is at the cost of a certain congestion and the waste of abandoned existing resources (especially in medium-sized and small towns), for lack of functional reorganization. However, it evidently produces certain benefits due to concentration (economies of size in the production of urban services, markets, flows of trade, etc.). Thus in Italy there has been a sharp and anarchical growth of certain big cities (Milano, Rome, Turin, Bologna) and also of some medium-sized towns which enjoy special advantages; and, at the same time, the impoverishment and decline not only of peripheral and agricultural areas (especially the South) but above all of some medium-sized towns which, once having reached the level of former urban civilization, have become incapable of themselves of safeguarding the standards of present-day metropolitan civilization (higher type of urban services), which are continuously improving 10/.

We have taken into consideration the constraints which guarantee each metropolitan city its present urban civilization, for example:

- a) a minimum population density (say, one million);
- b) reasonable accessibility for all its citizens in terms of travel

time, techniques foreseeable in the medium and long term and the "higher" types of urban services (this implies that the territories of these cities will have to be delimited);

- c) the coexistence of a multiple series of environmental factors which will enable citizens to meet large variety of needs within reasonable time limits (enough "free" space for leisure, zones adapted to an important development of industrial activities, possibilities of general population and infrastructural growth in the future).

Using these constraints and taking into account the geographical and ecological realities of the country, those responsible for the study have been able to pinpoint thirty "metropolitan cities" in Italy which are now at very different stages of development, but which are potentially capable, in the long run and if a suitable policy is being pursued, of achieving a common and satisfactory standard of "urbanity".

The most important operations in this functional reorganization of Italian urban structure are represented by:

- a) the efforts being made, in several directions, to prevent the traditional gravitation of certain medium-sized historic towns towards large metropolitan cities; a gravitation caused by the inability, on account of their small size, of these towns to support the whole weight of the urban services needed for modern metropolitan living. For this reason, an attempt has been made to create, between these medium-sized towns, an internal gravitation whenever geography has permitted it. By regrouping them and giving each of them a precise function, we have tried to make them into a single "metropolitan city" by means of planned conurbations. The instruments suggested for this are:
 - a₁ a metropolitan type of transport system between these towns, rather than the traditional gravitational transport systems leading to the great metropolitan centres;

- a₂ the creation of "new towns" strategically located, in order to strengthen the links between the existing medium-sized towns whose development is to be stimulated, and to bring them to the threshold of a metropolitan organization which would be justified by size and location;
- a₃ a careful territorial distribution of public investment in higher-type urban services - for example, seats of learning, theatres, research centres, airports, specialized hospitals, public centres of national interest, etc. so that these new metropolitan cities could reinforce their internal structure.
- b) the choice of three or four metropolitan cities out of the thirty mentioned in the study, which would be strategically located with respect to the present large metropolitan concentrations, and which would constitute, in the general strategy of the development of the national territory, a particular commitment for public action with a view to improving the general balance of the national territory and the creation of a national circuit of economic and social exchanges of a more complete and effective kind;
- c) a special policy of general support for planned metropolitan cities which are nevertheless very far from meeting the standards required and for which there will have to be a long transition period of development;
- d) a special policy for rationalizing metropolitan cities which have already reached a remarkable degree of "urbanity" but which are beginning to suffer from the ill-effects of congestion. This policy would aim at weakening their power of attraction without compromising their style of life, which but, on the contrary at rendering it less pathological and more physiological.

We cannot and do not wish to go into details of the criteria and aims of the Italian study; it will suffice to notice how the entire functional reorganization of urban structure is based on the need to optimize the spread of the benefits of "urbanity" - which implies a certain degree of concentration and to minimize the degradation of certain parts of the territory and the cost of accessibility,

which is guaranteed by the spread of decentralized metropolitan organisms.

14. Accessibility (transport) as a strategic instrument of the national plan

The problem of the optimum location of economic resources and the optimum exploitation of physical resources also raises the problem of accessibility, i.e. the transport of mobile goods and services to the users (goods traffic) and of users to the immobile and "physical" goods and services (passenger traffic).

Transport planning is thus a function and an integral part of territorial or "physical" planning (defined as the optimum spatial organization of economic interdependences).

Transport represents the cost of accessibility; this cost consists of:

- a) the amount of national economic resources employed in it: investment in equipment and infrastructure, land occupied, management, labour, etc.;
- b) the time it takes the user to get to the goods and services.

The collective interest is that of minimizing the cost, either in terms of resources employed in the organization of transport, or in terms of travel time; i.e. to obtain the minimum cost and time for a given location of users and given the constraint of the location of the physical resources.

In general, transport planning must meet the following needs:

- a) provide an indication of the axes of directions and of communication which will be given priority for improving accessibility for all citizens on the basis of specific criteria;
- b) provide an indication of the various methods of transport to be used on the chosen axes.

15. Specialization as an instrument for optimizing accessibility (transport)

With respect to the collective interest, accessibility takes place at two levels:

- 1) accessibility to goods and services of national (or world) interest;
- 2) accessibility to goods and services of regional or urban interest.

These two accessibilities must be optimized, but with slightly different aims:

- a) accessibility to goods and services of national (or world) interest aims at providing equal and rapid access for the inhabitants of each metropolitan city to the other metropolitan cities (and to international and intercontinental transport systems);
- b) accessibility to goods and services of regional or urban interest aims at providing the inhabitants of a metropolitan city with rapid and equal access to all points within the metropolitan city itself.

These two aims suggest the provision of accessibility by two different transport systems, both as axes of communication and as ways and means: a "national system" and a "metropolitan system". The functional specialization of each system would guarantee its efficiency.

The national-level transport system (which would be

linked with international networks) must not "interfere" with the metropolitan system, but be tangential to it; and it must obtain, through its specialization, a fluidity which does not concern itself with the territories and metropolitan cities it traverses. It must concentrate as much as possible on its own functions, and not offer costly and despersive alternatives. It must use the most appropriate vectors for its long hauls in the light of technical and geographical circumstances.

The transport system at the metropolitan level should not, in turn, "interfere" with the national system, but be attached to it in the most efficient way possible. At the most, it could communicate with the adjacent metropolitan city independently of the national network in cases where the geographical conditions of access favour the direct access rather than the use of the national network.

National and metropolitan systems of transport are linked by a functional relationship which must also be optimized at the various levels of economic development.

To the extent that the metropolitan city "satisfies" the higher urban needs of its citizens at its own level, it may be thought that the "remote" access to certain centres offered by the national system would lose attraction, while there would be an accentuation of its proper function of rapid strides towards that national and international integration which higher incomes will make increasingly possible. (This access is the instrument of the "new frontier"). The national transport network will therefore

tend, with the development of the metropolitan cities, to orient towards "long distance", selecting the most appropriate forms and means of transport.

The volume of traffic on the national system will not generally increase, but will become more and more specialized, and will increase its specialization as a function of evolving conditions.

When the metropolitan city reaches the level of the services assigned to it, metropolitan traffic will tend to absorb a large part of the local and urban traffic, which will become specialized in its turn. The whole process of traffic specialization, if undertaken at optimal economic dimensions, will tend to increase the productivity of the service either for the enterprise (thus reducing costs to the user) or in terms of faster transport for the user himself. In the sphere of transport we may usually assume that costs and travel time (technological conditions being equal) are roughly proportionate; this, therefore, is a case in which, more than in others, there is a close identity of interests between the productivity of the service and the satisfaction of the user.

16. The same Italian experience applied to programming a transport network

The specialization of the national transport system and its main axes of direction was defined in the study of Italy undertaken by the Development Planning Centre of Rome in the

same terms as those explained earlier.

The geographical and ecological structure of the country was followed, based on a transverse continental plain, sheltered to the North by a chain of mountains, (the Alps) and of a peninsula thrust into the sea, with a spinal cord of mountains (the Apennines). This led us to think of a basic infrastructure network (railways and motor highways mainly) crossing the continental plain from West to East in such a way as to be tangential to the proposed metropolitan cities (in order to avoid the present crossing of metropolitan traffic nodes) and two longitudinal lines along the peninsula (at the feet of the Apennines, wherever possible, one on the West and the other on the East). These two networks would serve all the metropolitan cities of the peninsula.

These flows, which would be as simple as possible, would serve each of the thirty proposed metropolitan cities, and they would have a national function, i.e., they would be specialized in rapid communication between the metropolitan cities. At various points of this unified network, there would be branches to transport systems of purely metropolitan interest, intended for specialization in rapid communications within each of the proposed metropolitan cities.

In connection with the infrastructure network for the whole of Italy, we also took account of a functional reorganization of ports, attempting to avoid the dispersal of functions by regrouping them in fundamental "systems" for important traffic, leaving aside less important systems for coastal traffic and other specific

activities (fishing, tourism, etc). As for airports, we simply thought it needful that each metropolitan city should be served by planes of the size foreseen for medium-range international traffic.

Thus, in this reorganization of the transport system, we tried to optimize the relationship between the social cost of the service and the yield in terms of easy and swift access to goods of national interest in the territory of the country and in areas outside the country.

Often, too, there is a regionalization of the overall plan which gives indications about the breadth of industrial and social investments in the territory.

National physical planning, as usually taken to mean the determination of physical developments in terms of urban "structures" (hierarchical and functional distribution of cities and transport networks, infrastructural plans for communications)

It is essential that there be a true integration of the two approaches (i.e. planning (economic and physical) in fact, as far, there has only been juxtaposition

CHAPTER III

A logical process in national planning

17. Current ideas about national economic and physical planning

In order to reconstitute the different elements of Chapter II of this report, concerning the integration of economic with physical planning, we can trace the main lines of a logical planning process.

National economic planning usually means devising a programmed accounting system based on a model of inter-relationships between economic phenomena, chosen on account of their specific importance to the country in question or because of a development strategy. To this concept of economic planning are often added plans dealing with projects for industrial or social investments, drafted with the framework of a sectoral breakdown of the objectives of the national plan 11/.

Often, too, there is a regionalization of the overall plan which gives indications about the location of industrial and social investments in the territory.

National physical planning is usually taken to mean the determination of physical developments in terms of urban "structures" (hierarchical and functional distribution of cities) and transport networks (directional axes for communications) 12/.

It is essential that there be a true integration of the two approaches to planning (economic and physical); in fact, so far, there has only been juxtaposition 13/.

18. A logical iterative process for integrating the two types of planning into one

To reach this integration, more is required than interdisciplinary collaboration at each planning phase; the various phases must follow a process of iteration which goes beyond normal checking of consistence and includes a "retro-action". This is shown schematically in Table 1.

The table proposes an **iterative** process which integrates the traditional phases of economic and physical planning at the national level. It does not demonstrate the basic process of planning. Other phases of planning are thus omitted from the schematic presentation and considered as implicit; as, for example, planning of financing or of social and technological development.

At the same time, the various phases and operations of planning are described in their iterative relationships and not in their methodological content (which would go beyond the scope of this report). The methodological content of each phase or operation has been mentioned (in Chapter II) only in the few cases where it seemed necessary for the understanding or justification of the iterative relationship. Finally, the iterative process is shown in the table in its simplest form; iteration requires several feedback phases or operation, whereas only one is shown in the table.

19. Illustration of the iteration pattern

The process begins with:

A the general elaboration of the objectives of planning, which are essentially political and social. These aims are practically independent of the results and verifications of iteration and therefore remain outside the "retro-action" of the process.

These aims then lead to:

A₁ options concerning the structure of consumption and the way individual people are going to live (diet, clothes, cultural life, leisure time, etc.) and concerning the structure of consumption and the living-pattern of the collectivity (political and administrative system, social and health services, natural and urban environment, scientific and technological research, etc.).

The general aims (and the choices which arise from them) point to three main directions for planning (in the temporal dimension).

The first is macro-economic planning; the second is what we call sectorial activities; and the third is the planning of physical resources (natural and cultural).

Macro-economic planning is based on the usual schematization of the magnitudes in the national accounts and begins with:

B the elaboration of macro-economic objectives concerning these magnitudes income/ employment, investment/ consumption, productivity/ prices/ wages, etc.

On this basis, and with the help of an aggregate development model, econometric projections are made which provide alternative solutions depending on the variants used in the application of the objectives chosen. National econometric projections can be formed on the basis of the options mentioned in A₁.

B₁ a quantified regionalization of projections, which can be perfected by the use of inter-regional development models and optimized by the application of linear models, once a function-objective has been chosen.

The other two directions of planning, those of economic activities and physical resources, are distinguished in the table so as clearly to show how, in the iterative process, the spatial factor assumes a different significance in the two cases mentioned in paragraph 5; the case of exploiting resources already linked to the territory and the case of resources not linked to it.

The latter is thus a strategic and direct moment in the achievement of the aims and general options of the plan. In the first case, we have to deduce, on the basis of general options concerning the structure of the final demand for goods and services (individual and collective consumption, with the exception of external demand and investment goods) how the whole of productive activities shall be oriented.

This implies:

C the elaboration of sectoral objectives by the use of industrial interdependence models (input-output), be they empirical or theoretical, which give in quantitative sectoral terms the implicit effects of options on consumption and the way of life of individuals and of the community. This "sectorialization" concerns all economics and productive activities, primary, secondary and tertiary, agricultural, industrial and commercial, and all collective or social services.

On the basis of sectorialization, we arrive at:

C₁ projects for the location of new investments corresponding to the expansion of production sectorialized under C. At this stage there is great emphasis on physical planning and feasibility studies.

We next come to:

C₂ the spatial coordination of (sectoral) economic projects by using tables of industrial inter-relationships and studying the direct and indirect effects of productive investments. At this stage we apply parameters concerning the optimum dimensions of public services and analyse their implications for the distribution and accessibility of the markets concerned.

At the same time, the other direction is deduced - less precisely, however, - from general aims and options concerning collective consumption for:

- D the elaboration of objectives for the exploitation of physical resources. These are linked to their pre-existent locations, which are permanent in many cases. These are concrete projects concerning natural resources (agricultural, mineral, flora and fauna, water, coastlines, natural harbours, mountains, etc.) and sites and infrastructures that exist already and are more or less correctly exploited (towns, factories, etc.).

These resources have a present or potential productivity that may be evaluated on the basis of:

- D₁ projects for the exploitation of the physical resources themselves. Each of these projects constitutes a reserve of potential income to be optimized by evaluating the cost of the factors to be mobilized for its exploitation.

This process leads to:

- D₂ the economic coordination of the exploitation projects for existing resources, above all in order to compare the cost-benefit relationships of the various projects and to devise combinations which will maximize the economies derived from functional integration. At this point there must also be coordination with projects for the location of economic and productive expansion elaborated on the basis of the sectoral aims of the national plan.

Then we come to:

- E a spatial coordination of all investment projects, whether to be sited or sited already (industrial, tertiary, infrastructure, social services, etc.). This coordination is achieved by means of patterns of reference in which the optimum solutions for the various projects are represented by parameters determined by the plan and derived from the general options.

Spatial coordination between the various projects in the search for spatial balance will also provide:

- F the planning of a location pattern on the territory, or "urban structure" (movement of population as a function of resource location and vice versa), as mentioned in paragraphs 10 and 11.

From spatial economic balance, together with the planning of urban structure, the system of accessibility should emerge, hence:

G the planning of the national transport system as a communications network for the urban structure itself.

The two programmes, that of national urban structure and that of the national transport system will allow a reconstruction of all projects for the exploitation of existing resources and infrastructure and of all investment projects to be located; this makes it possible to formulate concrete .

H localized investments plans which, in turn (and with their paraphernalia of parameters, evaluations, estimates and operational research) make it possible to readjust in a concrete way the macro-economic accounting, in its projections and disaggregations .

20. "Concrete" economic planning

Plan projections and their regionalization lead, by iterative interaction, to theoretical values calculated as "potential" income. In this way, we obtain a "concrete" table which shows how a regional development policy, far from lessening the likelihood a higher growth-rate for the national product (calculated in the abstract as a function of the relationships between capital and product by regions and zones) in fact constitutes the basis for a real policy of full resource employment and a real appreciation of all the opportunity costs which must be taken into account in a development strategy.

The adoption of this kind of procedure, possibly enlarged by other procedures corresponding to other approaches, seems to make for intimate integration of traditional economic planning with physical planning, and to provide both types of

planning, or better still planning at large, the ability to reflect and control the real and concrete phenomena of economic relationships, which are also spatial relationships, and systems of spatial relationships which are also economic relationships.

The role of the state in the economy

The fundamental link between physical and economic planning is the territorial link, defined as physical phenomena, which referring to certain circumstances that have to be made in a certain way, whereas planning itself may have been strictly influenced by the latter operations, and not systematically logical. In fact, in the first place, national economic planning is not concerned with the small details, but with the whole, and the latter operation is restricted to a macroeconomic level, that is, to operations with physical planning at the national level.

In the industrialized Western countries there is, of course, the French example, which is the most successful and advanced example of cohesiveness and interconnection between the different levels of economic and national and policies, and "top-down planning" at the national level. Despite that, even in France there is a dangerous lack of liaison between the centralization of the plan and the territorial planning after a decade of five-year plans and the "aménagement du territoire" (15).

In other Western European countries like the Netherlands, Belgium and Italy, achievements have been even less satisfactory than in France, despite the existence of long-term studies on territorial planning (16).

CHAPTER IV

Some final comments on the present state of experiences and the part played by UN programmes

21. The still backward state of the experiences

The methodological links between physical and economic planning at the national level outlined in previous chapters, while referring to certain experiences that have been made in countries which practice planning (and may have been strongly influenced by the Italian experience), are not systematically applied on a world scale. In the first place, national economic planning is not practised regularly in all countries, and when it is applied, one gets the impression that it is restricted to a macro-economic concept that has no organic links with physical planning at the national level.

In the industrialized Western countries there is, of course, the French planning experience, which is the most remarkable and advanced example of coexistence and interconnexion between the definition of economic and sectoral aims and policies, and "physical planning" at the national level. Despite that, even in France there is a dangerous lack of liaison between the regionalization of the plan (which is now firmly established after a succession of five-year plans) and the "aménagement du territoire".^{14/}

In other Western European countries like the Netherlands, Belgium and Italy, achievements have been even less satisfactory than in France, despite the existence of long-term studies on territorial planning ^{15/}.

In the Eastern European countries, there have been experiments in combining the normal activities of national economic planning and plans for the improvement of the national territory as a whole. It would be interesting to have more details and documentation about these, but they do not seem to have gone very far for the moment. Poland is the country which has provided the most interesting documentation on this subject, and she has merely concentrated her efforts on elaborating regional development plans of the classical type, or on economically regionalizing the national plan. In any event, Poland has recognized the fact that territorial development planning must take place within the frame of the national economic plan, which is not the case in several European countries, whether Eastern or Western 16/.

In the developing countries, the state of a common approach methodology between economic and physical planning is at an even more embryonic state. Various documents concerning the activities of the UN and its specialized agencies show this to be so.

22. UNO's interest in the problem during the first Development-Planning Decade

During the first decade of a policy for planned development, the UNO has several times called attention to the importance of close liaison between economic and physical planning at the national level. Several symposia and seminars have been directly or indirectly concerned with this subject. The first was a study cycle on "the role of physical planning and town planning in development"

(Accra, 1964) 17/, during which there was much discussion both of the role of physical planning in economic development and of the methodology of physical planning 18/. In the report on this "workshop", under the heading of methodology, there is a useful list of the main physical "elements" of a "symbiotic" plan, and much support for the development of "models" for national and regional planning, which is intended as a general guide for African countries in preparing such plans.

Another important opportunity for discussing the links between the physical and economic approaches to planning in a UN meeting was a symposium on the "planning and development of new towns", held at Moscow in 1964-19/. Despite the limited scope of the symposium, it was clear that the policy of new towns could not be divorced from a wider policy of national physical planning, in harmony with the national economic plan. The report of the symposium clearly states that physical planning units should be created within national planning organizations, and that these units should help in translating national economic and social policies into terms of plans suitable for the development of regions and urban and rural communities, and also help to correct the excessive attention which has so far been paid to aggregated and sectoral analysis in national policies and programmes. The report also says that physical plans and programmes for regions and new towns should have been prepared within the framework of national and regional plans for economic, social and spatial development.

A further occasion for developing methods and ideas in this respect within a UN context was offered by an international

seminar on "development policy and planning for urbanization" (Pittsburgh 1966) 20/. On the basis of a report on physical planning experiments in six countries (Ghana, India, Poland, Venezuela, Yugoslavia and Japan) it was noted, after a thorough study of the degree of integration of physical and economic planning in these countries that "there was great awareness of the fact that economic development can be separated from physical planning only at the cost of much financial loss and frustration, and that with the exception of Polish and Yugoslav experiments in spatial and economic planning and the Venezuelan experiment in the Guayana region, the two complementary fluxes of development had not yet been joined, although a number of promising starts had been made" 21/.

Whitin the limits of the resolutions already voted on these occasion 22/ and of the extent of documentary information about what is happening in other countries, we shall make some suggestions of a practical and purely personal nature for the improved integration of physical and economic planning, some addressed to the member governments and some to the UN itself.

23. Some proposals for participating countries

1. That, in each country, the medium-term economic and social plans (5 years) should be inserted in a more or less official documents covering a longer period (15 or 20 years).
2. That this longer-term perspective should include a general physical development plan in line with economic and social options, and should provide an idea of the distribution of urban

A) OPTIONS OF CONSUMPTION PATTERNS AND LIVING PATTERNS OF PERSONS

structures and of the population over the national territory, as well as the fundamental transport network at national level.

3. That, in each country, there should be one single governmental agency responsible for national economic and national physical planning. The institutional division of responsibility between authorities responsible for the economy, construction, transport and public works must be eliminated in matters of planning.

24. Some proposals for UN activities

1. That unified responsibility for planning between the "economic and social development" and the "housing, construction and town planning" sections should begin, at least at the planning stage, within the UN Secretariat itself. In addition, "development planning" needs a specialized, unified agency just as much as "agriculture" or "industrial development".
2. That, for the second decade of "development planning", it shall be clear that analysis, promotion and the granting of credits for the various UNDP projects shall depend upon the presence of precise references in these concrete and specific projects to an overall unified economic and physical plan in the country concerned.
3. That, in the absence of such a joint economic and physical plan, UNDP shall give first priority to projects designed to formulate long-term economic and physical plans at the country level (or even at the level of groups of countries) as the essential basis for evaluating the efficiency and profitability of concrete and specific projects.
4. That the appropriate UN services shall consider the creation of a "model for national plans economic and physical together" to be suggested to the various national authorities as a suitable methodology for an approach to "development planning". These models could take the form of concrete projects for certain countries, chosen on the basis of their being typical and representative :

POLITICAL AND SOCIAL AIMS AND OBJECTIVES

A1) OPTIONS OF CONSUMPTION STRUCTURE AND LIVING PATTERNS OF PERSONS OF THE COMMUNITY

BORATION
 ZO-ECONOMIC
 TIVES
 ED MODEL
 BROWTH
 employment
 nt - consumption
 ity - prices

C) ELABORATION OF SECTORAL OBJECTIVES
 PERSPECTIVE INPUT - OUTPUT MODEL
 industry
 tertiary
 services

D) ELABORATION OF PHYSICAL RESOURCE EXPLOITATION OBJECTIVES (natural - infrastructure)

C1) PROJECTS FOR LOCATION OF NEW INVESTMENT FEASIBILITY STUDIES

D1) PROTECTION OF EXPLOITATION OF PHYSICAL RESOURCES PROMOTION costs - benefit analysis

C2) SPATIAL COORDINATION OF ECONOMIC PROJECTS (SECTORAL)

D2) ECONOMIC COORDINATION OF LOCAL PROJECTS (regional)

E) GENERAL COORDINATION OF SECTORAL AND SPATIAL INVESTMENT PROJECTS OPTIMIZATION - COMPUTATIONS

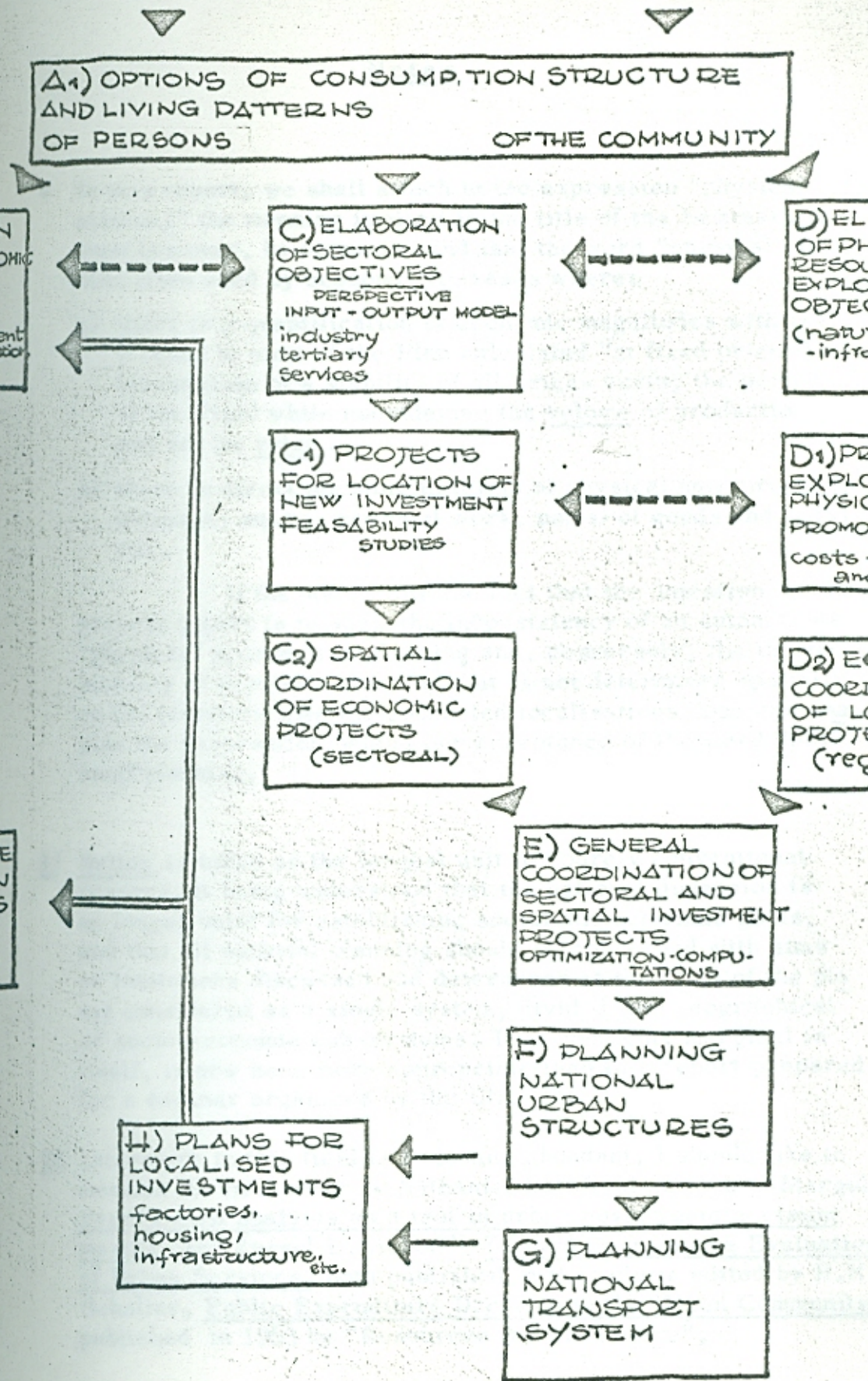
F) PLANNING NATIONAL URBAN STRUCTURES

G) PLANNING NATIONAL TRANSPORT SYSTEM

H) PLANS FOR LOCALISED INVESTMENTS factories, housing, infrastructure, etc.

QUANTITATIVE UTILIZATION SECTIONS
 national growth

PHASES AND OPERATIONS
 APPLICATIONS
 CONSISTENCY CONTROL
 EVALUATION OF THE WHOLE



Notes

* In this report, we shall attach to the expression "physical planning" the meaning implicit in the title of the Seminar. It must, however, be borne in mind that the word "physical" is also often used by economists in cases where:

- a) there is a quantification of economic magnitudes with reference to aims of the Plan calculated "at fixed prices" (assumption of a stability of all prices during the period of the Plan) while considering the volume of production and not its value ;
- b) there is direct planning in terms of physical measurements (tonnage; sq.m., hours of work, units) of goods and services.

If we add to this the fact that the intention of the present report is to show the inconsistency of an autonomous "physical" approach to planning and, conversely, the inconsistency of economic planning that is not determined spatially on the territory with the connected localisations, one can imagine the reservation behind our acceptance of the word "physical" planning.

- 1/ Nation is taken as the largest unit for purely conventional reasons, it being understood that the national dimension is no longer valid for establishing social and economic goals, and that all national planning should be concerned with aims or limitations discussed and determined at the level of the planet considered as a single system, divided into geographical or socio-economic sub-systems. This comment, marginal in itself, is now here more appropriate than in a report prepared for a seminar organized by the UN.
- 2/ Literature in this field is becoming abundant. I should like to mention the first work by Nathaniel Lichfield and Julius Margolis, Benefit-cost analysis as a tool in urban government decision making, and Russel L. Ackoff's Toward Quantitative Evaluation of Urban Services, both published in the volume edited by H.H. Schaller, Public Expenditure Decision in the Urban Community, published in 1963 by "Resources for the Future".

Some interesting comments on this aspect are to be found in many of the articles contained in a special issue of the "Journal of the American Institute of Planners" of May 1965 (vol. XXXI, N° 2) devoted to Urban Development Models; New Tools for Planning (Guest Editor: Britton Harris). This begins with an introduction by Britton Harris himself, New Tools for Planning, followed by Kenneth J. Schlager's essay, A land use plan design model, in which the author suggests how the process of "comprehensive planning" can find a compatible solution, with an experimental solution in linear programming. A general methodological discussion on the application of the mathematical models to urban planning is to be found in the article by Ira S. Lowry, A short course in model design, in the same issue.

A general discussion of the limits and significance of optimization techniques in territorial planning is contained in Britton Harris' article, Plan or Projection: An Examination of the Use of Models in Planning (in "Journal of the AIP" XXXVI, Nov. 1960, pp. 265-72) and the same author's paper Organizing the Use of Models in Metropolitan Planning Univ. of Pennsylvania, Inst. for Environmental Studies, Marc 1965, prepared for a Seminar on "Metropolitan Land Use Models" organized at Berkeley, California, on 19 and 20 March 1965. This last paper gives the most complete survey on the state of techniques in this field. One may also profitably consult a special issue of the new review "Socio-economic planning sciences" devoted to the application of operational analysis to urban policies (July 1968). In the previous issue of the same review (December 1967) is Paul Ove Pedersen's Multivariate models of urban development. An examination of some American models and an outline general methodology are in Carlo Santi's L'uso di modelli matematici nel campo degli studi urbani, Primi elementi (The use of mathematical models in the field of urban studies, First elements) Milan 1967.

See the comments by Jean Marczyk, Les modèles de planification et d'aménagement du territoire, 1967-68 (Revue de Géographie de Louvain), especially pp. 14-17, a more extensive and more detailed study of spatial programming in the field of urban planning and fairly recent survey of methods (with a list of references) by Thomas

- 3/ The risk of econometric simplification with regard to statistical aggregations of phenomena to be optimized is examined in H. Theil, Linear aggregation of economic relations, Amsterdam 1965. See also more general work on macro-economic programming in A. Babeau and F.H.Derycke, Problèmes techniques de planification, Paris 1967, a remarkable critical survey of all the most recent experiments in econometric programming applied to a national economy.
- 4/ See similar remarks on this point in the work by N.Lichfield and J.Margolis already cited (par.2). On the problems of evaluating the costs and benefits of urban services, see also the article by Ackoff quoted above and F.Archibugi and A. Busca, Le concentrazioni urbane (Urban concentrations), research undertaken for the EEC Commission, especially Cap.1, (Analysis of methods and the results of research into the costs of urbanization).
- 5/ Studies for detecting and establishing the so-called "social" indicators of improved living standards which cannot be measured in terms of products or monetary income have met with great difficulty in some fields, such as that of urban living. See, for example, Ecole Nat. d'Administration, Contribution à la recherche sur les indicateurs sociaux (research for the French planning Agency, April, 1968, processed). See also William B.Ross, Policy analysis and housing and urban development programs. Ross directed the application of FPBS in the "Housing and Urban Development Department" of the United States government, and he discusses the method of evaluating the benefits and results of Federal policy in this field. (The article is published in the three-volume work of the "Joint Economic Committee" of the US Congress: The analysis and Evaluation of Public expenditures: The PPB System. A Compendium of Papers, vol. 3, pp. 1233-1241) Washington 1969.
- 6/ See the comments by Jean Marczewski in Cours de planification et aménagement du territoire, 1967-68 (Paris, Les Cours de droit), especially pp. 14-17. Literature on the function and utility of spatial programming is abundant. A very good and fairly recent survey of methods (with a long bibliography) is in Thomas

Victorisz, Locational Choices in Planning, in the collective volume National Economic Planning, National Bureau of Econ. Research, New York 1967. A more eclectic and less recent work is the collected volume published by OEEC and edited by W. Isard and J.H. Cumberland, Regional Economic Planning, Techniques of Analysis, Paris 1961.

See also two Italian contributions: G. Di Nardi, Prolegomeni ai piani regionali di sviluppo (Introduction to regional development plans) Rassegna economica, July-Sept. 1959 and S. Lombardini, La programmazione economica regionale e le sue relazioni con la programmazione nazionale (Regional economic planning and its relation to national planning) in the volume by the same author, La programmazione, idee, esperienze, problemi (Planning- ideas, experiences, problems) Turin 1967.

- 7/ See Marczewski, op. cit. pp. 257-267. Among the different possible aims of regional planning, the author cited prefers that of "the maximization of national growth accompanied by rational differentiation of regional growth"; and he tries summarily to establish the "criteria" of this "differentiation". The considerations which follow in the second part of the present report have exactly the same purpose: to study the criteria which could give a "rational" content to a regional differentiation which would be accompanied by the maximization of the national income.
- 8/ The theory of spatial balance, or simply the spatial economic theory, throughout its long evolution (see Claude Ponsard, Histoire des théories économiques spatiales, Paris 1958) is essentially founded on the balance between the utility of the producer (productivity) and the utility of the user (profitability). The most important recent work in this respect is that of Lösch, Christaller and Palander. Their studies are well summed up in the ideal scheme for an urban infrastructure given by Marczewski op. cit. p. 271. In the United States, an enormous but prolix literature has grown up around so-called "regional science".

See as example the work of W. Isard, Methods of Regional Analysis, New York 1960, and of B. J. L. Berry and W. Garrison, Recent Developments of Central Place Theory, in "Regional Science Ass. Papers and Proceedings", IV, 1958; The Functional Bases of the Central Place Hierarchy in "Economics Geography", 1958; Central Place Theory and the Range of a Good, in "Economic Geography", 1958.

9/ The official document is: Ministero del Bilancio e della Programmazione Economica, Progetto '80: Rapporto preliminare al Programma economico nazionale 1971-1975, Rome, April 1959 (Ministry of the Budget and Economic Planning, Project '80, Draft report for the National economic Plan for 1971-75), Rome, April 1969 (pp. 57-112 of the Appendix). The "Development Planning Centre's study was presented to the Minister under the heading Progetto '80: Proiezioni territoriali (Project '80: Territorial Projections) in three volumes and 24 charts, processed Rome 1969.

10/ See G. Ruffolo, La programmazione nella prospettiva degli anni '70 (Programming with a view to the Seventies), a report delivered to an Italian National Conference on Economic Planning held in March 1968, and published as N° 48 of the Occasional Papers of the Development Planning Centre; and F. Archibugi, La crescita delle città in Italia: aspetti demografici dell'inurbamento nel decennio 1951-1961 (Urban growth in Italy: demographic aspects of urbanization during the decade 1951-1961), in "La città-regione in Italia" (The city-region in Italy), (collective volume edited by F. Archibugi) Turin 1960.

11/ For a more detailed discussion of this definition, see François Perroux, Projets spécifiques et plan de développement national in "Encyclopédie française" vol. IX, and, by the same author, Les techniques quantitatives de la planification, Paris 1965; also, the work by Vittorio Marrama, Problemi e tecniche di programmazione economica (Problems and techniques of economic planning); Neil Chamberlin's book, Private and Public Planning, contains in Chaps. 3, 4 & 8 a discussion of the differences between general and partial planning. The general methodology of economic planning is also dealt with in Oskar Lange's Fundamentals of Economic Planning, in the Essays on Economic Planning, Calcutta 1960.

- 12/ Physical planning at national level has been but little discussed or elaborated in any country. See the yearbook prepared by the Institut d'Etudes Politiques of Grenoble: Aménagement du territoire et développement régional. In France, where a policy of "metropoli of balance" and a policy of transport networks harmonized accordingly have been instituted, and in Italy where a project has been established (see document cited above) for metropolitan system for the 1980's with an appropriate transport network, we can see what is meant by the essential "physical" plan for a nation.
- 13/ More or less official documents and reports of the United Nations, to be quoted and discussed in the fourth part of this report, contain many references to the needs of integrating economic and physical planning and national level. See also Franco Archibugi, L'assetto territoriale della programmazione economica (Territorial balance in economic planning) published by the Journal "Urbanistica" in its special issue N°49 entitled Una ipotesi di assetto del territorio italiano (A balance hypothesis for the Italian territory), and Franco Archibugi, Verso la definizione di obiettivi urbanistici della pianificazione (towards a definition of the urban objectives of planning) in the collective volume La città-regione in Italia (The city-region in Italy) already cited.
- 14/ See special issue N°89 of the review "Urbanisme" (1965), devoted to Métropoles d'équilibre, and the summary of five years' experience in this direction given in the interview by R.Goetze and M.Colot, President and Secretary General of the "Groupe central de planification urbaine" created within the framework of the "Délégation générale à l'aménagement du Territoire" and published in the Journal "2000" revue de l'Aménagement du territoire" (N°67, 1969).
- 15/ For Italy, see the research already cited. For Holland, see the "Second Memorandum on Physical Planning" presented by the Government to Parliament in Sept. 1966. One can see some signs of evolution in the movement for a joint evaluation of physical and economic development of the entire region of "North-west Europe" (or North Sea Region), i.e. South-east England and the conurbation formed by Holland, the Rhine-Ruhr district and the Belgian and Northern French agglomerations. See J.Witsen, Physical Planning in Northwest Europe, in "International Federation of Housing and Planning Bulletin (N°2, 1968, pp.33-36).

- 16/ See information available in United Nations documentation, especially the report by Rita D. Kaunitz, National and Regional Development Policies and Planning in Relation to Urbanization, prepared for the Inter-regional Seminar on the same theme held by UN in Pittsburgh 24 Oct. - 7 Nov. 1966. In chapter VI of the report ("Integration of economic and physical planning") express mention is made of experience in Poland (see also the extensive bibliography).
- 17/ The UN has not published the reports of this study cycle, organized by the Ec. Comm. for Africa, but they are available at the documents office of the "Centre for Housing, Building and Planning" of the UN, New York.
- 18/ Especially a report by Boleslaw Malisz. See also Donald Monsen, The Role of Physical Planning in Development Planning, Proposals for the Preparation of Manuals on Various Aspects of Physical Planning (prepared for the Committee on Housing, Building and Planning. Third Session, New York, 7-20 Sept. 1965. Background paper N°1. Item 4 (a). Processed. 30 June 1965).
- 19/ See "Report of the United Nations Symposium on the Planning Development of New Towns", Moscow, USSR, 24 August - 7 Sept. 1964 (66.IV.3).
- 20/ See "Inter-regional seminar on Development Policies and Planning in Relation to Urbanization", Report, 24 Oct. - 7 Nov. 1966, Pittsburgh, Pennsylvania, USA).
- 21/ See report of Pittsburgh Seminar quoted above.
- 22/ And also by the UN "Centre for Housing, Building and Planning", Selected conclusions and recommendations on regional and metropolitan planning: new towns and land policy, presented at another seminar held in Nagoya, Japan, 10-20 Oct. 1966.