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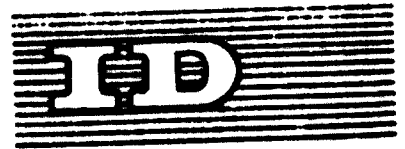
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AD HOC ADVISORY EXPERT GROUP MEETING ON  
REGIONAL INDUSTRIAL PLANNING - FINAL REPORT

(Geneva, 29 May - 2 June 1967)

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We regret that some of the pages in the microfiche copy of this report may not be up to the proper legibility standards, even though the best possible copy was used for preparing the master fiche.

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## INTRODUCTION

1. This report is the outcome of five days of intensive discussion by nine outstanding experts in the field of industrial location and regional planning. The ad hoc advisory expert group met in Geneva from 29 May to 2 June in 1967. Nine of the ten experts who had been invited by the United Nations Industrial Development Organisation (UNIDO) were able to attend the meeting. All participating experts had previously co-operated in some capacity with the United Nations. They were carefully selected on the basis of their expertise, and according to the need to have the main trends of thought in the field of industrial location and regional planning represented at the meeting. Thus, the conclusions and recommendations of the meeting may be considered as a general consensus of opinion by experts on the subjects discussed. The list of participants is included in annex 4 of this report.

2. The work of the United Nations Industrial Development Organisation in the area of regional industrial planning stems directly from the activities that the Policies and Programming Division of the Centre for Industrial Development, UNIDO's predecessor, began in late 1965. These activities concentrated on the organization of an Interregional Seminar on Industrial Location and Regional Development to be held in 1968, and on the preparation of related studies. Building on the "know-how" gained by the Centre for Industrial Development, UNIDO has been able to devote increasing attention to technical assistance activities in regional planning and programming. It is envisaged that in the near future technical assistance will form the bulk of UNIDO's activities in this field, as well as in other fields.

3. The meeting was convened in order to submit the work programme of UNIDO to the critical scrutiny of the experts, to benefit from their views on the importance of various regional planning problems and to solicit concrete proposals for a relevant and effective technical assistance programme in the important area of industrial development.

## CONCLUSIONS AND RECOMMENDATIONS

4. The experts' examination of the various items on the agenda of the meeting led to complete agreement on the following major conclusions and recommendations. A detailed account of the supporting arguments leading to the statements below, as well as additional points and suggestions, may be found in subsequent sections dealing with specific items.

### Conclusions

5. Although the following conclusions were considered to be generally valid for developing countries, the experts stressed that most concrete regional planning and locational choices can be made only by taking into account the specific characteristics and objectives of each developing country.

### General conclusions

6. "Regional development should be viewed as a total problem and not simply as a problem of location of individual industrial plants severally considered."

7. "At early stages of development there is a very strong economic and technological tendency for industry to concentrate geographically. Decreasing inequality of regional incomes may occur only at high levels of industrialization. Policies directed to counteract the tendency towards geographic concentration of industry in developing countries, for whatever national objectives, should take into account the possible detrimental effects of industrial decentralization attempts upon the achievement of other national objectives."

### Transportation

8. "A developing country should not attempt, at early stages of development, to create a comprehensive transportation network."

9. "Within the constraints posed by indivisibilities of transport investment, the latter should precede by as little as possible with investment in other activities. The appropriate objective in transport investment, and in investment in infrastructure in general, is to ensure a level of infrastructural capacity which is in line with projected needs without freezing an excessive amount of resources."

10. "No investment in transportation to 'frontier' regions (beyond the minimum required for effective exploration) should be undertaken before exploration has shown that there is sufficient economic justification for such investment.

#### Labour

11. "In developing countries it is extremely difficult to obtain willing movement of skilled labour to underdeveloped regions. When rational location of an industrial project calls for inducing such a movement of labour, the necessary preconditions must be created and the costs of doing so weighed carefully."

#### Inter-industry relations

12. "Due to the characteristics of modern technology, the external economies arising out of the linkages between interrelated industries have become one of the most important factors of industrial location and must be taken into account in regional planning. There are a number of reasons why the existence of inter-industry relations is a powerful stimulus to geographic concentration of industry, particularly in developing countries."

#### Urbanisation

13. "In the evaluation of urban programmes, consideration should be given not only to the higher costs associated with large cities, but also to the benefits to be derived from urban facilities. However, little empirical evidence is available on the relationship of economic costs to the benefits of city-size. A thorough investigation of this important relationship is needed."

14. "When urban facilities are provided, for whatever purpose, at a price different from scarcity price, the hidden subsidies or implicit taxation should be made explicit, and their incidence apportioned in such a way as to avoid distortions in the relative use of factors of production."

#### Regional planning

15. "Development of a region should be viewed as part of national welfare. The broad objective of national planning is to increase national social welfare. All components of social welfare are interdependent. An important component of social welfare is the balancing of present consumption with future consumption in accordance with the time preference of the country, that is, the determination of the path of national economic growth. Another component consists of



the achievement of the desired type of personal income distribution. A third component of social welfare is regional consumption needs, which should be balanced with other national objectives, and particularly with the national economic growth objectives. This is one necessary view of the problem of regional planning. A second necessary view of regional planning relates to the identification of the pattern of geographic distribution of investment that is likely to be the most conducive to the fulfilment of the national objectives. Regional planning is thus also a means to fulfill national goals."

16. "Social profitability rather than commercial profitability is the appropriate yardstick for evaluating regional planning decisions."

17. "For effective regional planning, not only economic but also sociological factors should be recognized."

18. "In the planning of industrial development sectoral and regional planning should, in principle, be done simultaneously. This is very difficult in practice. Nevertheless, whether a sectoral or a regional approach is used primarily, the interdependence between regional choices and sectoral choices must at all times be recognized, and the feedback effects implied in planning of the iterative type must be taken into consideration."

19. "Planning tools and techniques of regional planning should be adapted to the low level of information availability and the level of planning skills prevailing in developing countries. Costly and complex planning tools should be used with great caution. Simple techniques and indicators, especially when used in conjunction with one another, may often be preferable, in a developing country, to sophisticated methodology."

#### Recommendations for action by UNIDO

20. "UNIDO should strongly promote an improved understanding of the spatial dimension of industrial development and a wider use of efficient techniques of industrial location and regional planning. This complex task should be carried out through a well-balanced combination of research, promotional activities and operational activities. Research activities should, insofar as practicable, be kept separate from other UNIDO activities, although they should be designed to provide substantive guidance to technical assistance programmes."

### Research activities

21. The undertaking of directly relevant research is indispensable for a productive and co-ordinated promotional and operational programme in regional planning as much as in the general field of industrial development. The experts have agreed on a list of several topics of priority importance (see annex 2) that UNIDO should research in the future, as time and budget permit, in addition to whatever research will be necessary for direct support of specific operational activities.

### Technical assistance activities

22. The preparation of an Operations Guide on Regional Industrial Planning is an extremely useful and urgent project. UNIDO should spare no efforts in its attempt to construct a comprehensive, detailed, and fully operational guide. UNIDO should engage in the dissemination of technical information on regional planning and development to developing countries. In this context, the possibility of directly undertaking training activities in this field deserves serious consideration.

23. UNIDO should explore the possibilities of creating permanent multi-national centres for research and training in regional development and planning. As a first step, regional planning sections should be formed within existing industrial development centres.

24. Separate categories of "Regional Industrial Planners" and "Industrial Location Experts" should be introduced in UNIDO's roster of technical assistance experts. Efforts should be made to include as many competent experts from developing countries as possible.

## I. INDUSTRIAL LOCATION IN DEVELOPING COUNTRIES

### Industrial location and regional development

25. The study Industrial Location Planning (ID/CONF.1/12) prepared by UNIDO for the International Symposium on Industrial Development, Athens, 29 Nov. - 20 Dec. 1967, provided the substantive framework for the experts' discussion of industrial location factors and problems of regional economic development. The substance and positions of the paper met with the general approval of the group, although a number of criticisms were raised.

26. The experts' consensus of opinion was that regional development must be viewed as a total problem and not merely from the standpoint of industrial location, because regional development itself affects, as well as is affected by, the location of industry. Thus, regional planning cannot deal only with industry but must use an integrated approach, incorporating all economic activities that contribute to a region's development. Nevertheless, it was felt that the group's discussion, as well as UNIDO's work programme, could profitably focus its attention on industry, and examine other factors from the standpoint of their impact on regional industrial planning.

27. It was also felt that a dynamic approach to industrial location and regional planning should be employed. Such an approach takes into account not only current short-run and structural characteristics of regions in developing countries, but also projected future changes in these characteristics, including those changes that can be brought about by conscious location policy decisions.

28. Most experts agreed that, whereas the problems of industrial location and regional economic development and planning in developing countries differ from those faced by the more industrialized economies, these problems were, nevertheless, equally, if not more, relevant. Developing countries simply cannot afford "mistakes" in the geographic location of industrial projects in light of the generally limited economic resources at their command. Also, many fiscal policy instruments formally available in developed countries may not be available to the governments of developing countries; thus industrial decentralization policies may have to be used as substitutes for other income redistribution policy instruments. Several experts were of the opinion that there is a greater scope in developing countries for regional planning of a long-term nature because so much less over-all investment has taken place compared with the investment in

industrialized nations. As a result, the broad choice of changes in the pattern of geographic distribution of industry is, in developing countries, affected to a lesser degree by pre-existing facilities than in developed countries, and greater long-run policy freedom exists. On the other hand, it was agreed that in the short run and for specific projects the choice of location is severely limited in developing countries because cost differentials among alternative locations are usually much larger than in advanced economies.

29. There was general agreement that in developing countries attempts to locate industries in underdeveloped regions are very likely to be costly in terms of national economic growth. Industrial decentralization policies should be undertaken with great caution. The difficulties of decentralizing industry are compounded by controversies as to the type of industries that should, on an a priori basis, be considered suitable for location in underdeveloped regions. Often ad hoc solutions are sought. It was reported, for example, that in Poland the following procedure is followed. If the competent ministry cannot prove that it is absolutely necessary to locate an industry in a specific region, the industry is located in an underdeveloped region.

30. Some experts noted that it is easier to establish small-scale industries in underdeveloped regions because these industries are usually locationally oriented towards local markets. On the other hand, it was felt by other experts that, from the standpoint of long-run growth of developing regions, fast-growing, large-scale industries are required. It was reported, for example, that in France fast-growing, large-scale industries have been given incentives to locate outside of the Paris area in hope that through their impact on related activities they will contribute to the creation of growth poles in the periphery. (However, in the case of Grenoble, a fast-growing centre was created through small-scale industries.) While inter-industry relations in general tend to lead to concentration of economic activity, they can also be exploited to create regional centres of economic activity, to avoid concentration in one centre, and thus to pursue a policy of decentralization. However, several experts pointed out that the example of France is misleading, as it relates to a highly industrialised economy. The possibility of decentralization of large-scale industries in developing countries is severely limited and costly due to the over-all small size of the latter's economies.

### Factors of industrial location in developing countries

31. The various factors affecting industrial location and regional economic development were discussed with a view to determine the direction and mode of their influence on the pattern of spatial distribution of industrial activity in developing countries. Several factors were examined. The space devoted to the discussion of each factor does not necessarily reflect its relative importance in the geographic distribution of industry. Rather, the discussion reflects the experts' efforts to clarify the role of location factors whose impact is ambiguous or controversial. Thus, for example, little attention was devoted to natural resources as a factor affecting industrial location. Their importance is self-evident and little discussion was deemed necessary.

### Transportation

32. The importance of transport costs as a location factor varies with the size, terrain and population density of a country. Despite recent technological advances which have lowered over-all unit transport costs, the latter are still a crucial location factor in developing countries, much more so than in industrially advanced countries.

33. The experts pointed out a number of reasons why, with economic development, the role of transport costs as a factor of industrial location tends to decline. Increasing production makes possible greater utilization of the existing transportation network, thus reducing unit transport costs. This fuller utilization of facilities also results from the use of two-way traffic, avoiding empty hauls in one direction. More generally, development is accompanied by an increase in the value added component of production and a relative reduction in the raw material input component. As a result, the role of transport costs as a location factor may be presumed to decline in importance relative to other factors. It was also noted that transport costs exert a different influence on different industries; in some industries transport costs are so low relatively that they can be safely disregarded.

34. One expert believed that the widespread use of air transport might in certain instances reduce transport costs to outlying areas and offset to some extent the tendency of industry to concentrate. He also pointed out that the cost of infrastructure for air transport can be very low for local services. Several experts noted, however, that new technology in shipping and air transport

involves the use of larger ships and larger planes; these require larger port facilities which can be established only in one or a few central points.

35. The experts were in general agreement that recent technological progress in transportation media and the structural characteristics of existing transportation systems in developing countries are a major factor leading to geographic concentration of industry in these countries. In most instances, existing transportation routes branch out from the main urban centre, with no inter-connecting links among the regions of the periphery, thus increasing the economic distance to and from these regions and inducing economic concentration.

36. The role of the main urban centre as a dominant transportation node in developing countries may be even greater if the urban centre is also the principal port, which it often is. In this case, transportation routes converge on the centre to an even greater extent, since most imported goods must go through it. In this context, one expert argued that if a process of substitution of domestic for imported raw materials in industrial production takes place, this may result in the establishment of industries away from the main port and near domestic raw material sources. Such substitution would thus act as a stimulus towards industrial decentralization. However, several experts pointed out that, in the case of producers' goods industries, substitution for imported raw materials will not lead to decentralization, since such industries have a stronger locational orientation towards related industries, or towards markets, than towards raw materials. Industrial contacts and certainty of delivery are more important to them than proximity to a raw material source.

37. Due to the continuing importance of the transportation factor in developing countries, a major problem of economic development is to determine the magnitude, nature and timing of investment in transportation facilities and in infrastructure in general. Most experts agreed that filling the "missing links" in the transportation system should be the first objective of investment in transportation. All experts stressed that a country is likely to waste a great amount of needed resources if it attempts to construct a comprehensive, modern transportation system during early stages of industrial development. Criteria of technical "completeness" should have no place in the planning of transportation for economic development of developing countries.

38. Most experts **believed that**, within technologically feasible limits, investment for transportation should be undertaken only slightly ahead of investment in immediately productive facilities and in close conjunction with projections of the expected utilization of the transportation system. In turn, as development proceeds, a higher degree of utilization of transportation facilities is to be expected.

39. The following suggested approach to the timing of transport investment relative to investment in productive facilities met with the general approval of the group. In the first stage damaging gaps or missing links in the transportation system should be filled. In the second stage, transport investment should begin to branch out and use transport building as a "searching device" for new developmental possibilities. Only in the third stage, at advanced levels of development, should transport investment be designed to achieve the completeness and the over-all consistency of a transportation network.

40. The choice of the specific mode of transportation to be employed depends on the nature of the goods to be transported, the nature of the terrain and other similar factors. One expert noted that the value of traditional forms of transportation in developing countries is usually underestimated, while in fact these forms of transportation can perform an important function. Traditional forms of transportation are particularly valuable in tropical countries, where climatic conditions may make the construction and operation of modern forms of transportation very expensive.

41. Considering the two main modern modes of land transportation - roads and railways - the group showed a general preference for roads. The reasons advanced for this preference are as follows:

- (a) Road capacity can be expanded continuously because the expansion of a road network does not require large sums of investment, while that of a railway network does;
- (b) Both the utilization and the physical characteristics of road rolling stock are more flexible and adjustable to the transportation needs of a developing economy than those of railroad rolling stock;
- (c) In many developing countries railroads have pursued pricing policies that have often been detrimental to economic development.

Several experts stressed the fact that, at present, there is an undesirable bias in developing countries in favour of railroads, for which international financing agencies are partly responsible. Until recently these agencies have

normally financed only the foreign exchange component of investment, and it has been relatively easy to obtain aid for projects with a high foreign exchange component. Since this component is higher in railroad investment, there has been a tendency among developing countries to seek international assistance for the building of railway networks. Furthermore, because the loan discount rate of these agencies is much lower than private or social discount rates in developing countries, there has existed an artificial stimulus towards investment in projects with large construction costs (such as railroad construction) and thus a bias has been built up against investment in projects with smaller fixed capital requirements.

### Labour

42. The importance of labour as a location factor (like that of any other location factor) is intimately related to its geographic distribution and to the degree of labour mobility. If labour skills were evenly distributed throughout a country, or if mobility of labour were high, local availability of labour would have little bearing on the decision to locate a plant in one region or another. However, under conditions of imperfect labour mobility, the regional distribution of labour in general and of different kinds of labour skills in particular, is an important factor affecting industrial location.

43. Most experts agreed that in developing countries the largest supplies of skilled, technical and professional labour are to be found concentrated in one or a few metropolitan centres. In addition, labour's propensity to move to underdeveloped regions is generally low in most countries and particularly limited in developing ones. As a result, industries requiring large amounts of skilled labour input tend to be highly concentrated in developing countries. Furthermore, since a country's development often involves the establishment of industries utilizing progressively larger amounts of skilled labour, this tendency towards industrial concentration is apt to become stronger.

44. Some experts pointed out that a major cause of low labour mobility to underdeveloped regions is the absence in these regions of housing, educational and recreational facilities, and a lack of the amenities associated with metropolitan life. Mobility of skilled labour, in particular, tends to increase in direct relation with the provision of such facilities outside the main urban centres. In this context, one expert suggested that the creation of "company towns" may



provide a strong inducement to the movement of labour to outlying areas. Another expert observed that the creation of company towns may be a good stimulus to labour mobility but that their construction is very costly. As a matter of fact, such construction requires large amounts of exactly those types of skills that are particularly scarce in developing countries. It was noted that the construction of urban-type facilities is subject only to large economies of the scale which makes the cost per worker transferred lower when large numbers of workers are moved. There was general agreement, however, that previous availability or the creation of urban-type facilities in underdeveloped regions is usually not a sufficient condition to induce skilled labour to move to these regions; even in a relatively advanced country such as Italy considerable salary premiums are also necessary.

45. Another expert pointed out that inducing skilled personnel to move to underdeveloped regions is only part of the problem as they must also be induced to stay. Employment of skilled personnel in outlying areas is normally subject to high turnover which adds significantly to operating costs. Since the turnover of local personnel in underdeveloped regions is much lower, it was suggested that the problem of low interregional mobility of skilled labour could be circumvented by establishing industrial training facilities outside the main centres. Creation of such training facilities in underdeveloped regions may offer the benefit of generating a progressive atmosphere conducive to the development of these regions.

46. One expert believed that a movement of skilled personnel to an underdeveloped region may also have similar beneficial effects in the sense of creating an "industrial mentality" in the region by raising the standards of work, and thus generally improving the social framework within which industrial development can be achieved. Other experts noted, however, that the same, or greater, effects may be achieved at less cost by temporary migration of local labour abroad or to the more advanced regions of the country.

47. In general, the problem is posed whether to establish a new industry in an underdeveloped region and train local unskilled labour (with the help of the "industrial mentality" induced by the skilled personnel who move with the industry), or to provide incentives, explicit or implicit, for the temporary movement of the unskilled labour of underdeveloped regions to the training facilities of the main industrializing centres. As both operations are costly, the experts

emphasized that the selection of one is difficult to make. The costs of different policy-mixes in each case must be carefully weighed in light of the characteristics and objectives of a specific developing country.

48. Some experts also remarked that mobility of labour in general would increase if a "frontier spirit" existed or could be generated in the country at large. It was reported that such a spirit was, for example, instrumental in increasing the mobility of labour towards the outlying regions of the United States in the nineteenth century and in the Union of Soviet Socialist Republics in more recent times. One expert emphasized the importance of spreading information on labour markets as a stimulus to interregional labour mobility.

#### Scale economies

49. Existing empirical evidence was interpreted by most experts as an indication that industries in which economies of scale are important (typically, large-scale industries) have a tendency to be geographically concentrated; similarly, that small-scale industries are likely to be local-market oriented and consequently relatively dispersed. A few experts, however, felt that no such clear-cut distinction could be drawn and that some industries in which small plants predominate are not geographically dispersed; also that economies of scale and external economies should be analyzed jointly.

50. The majority of experts felt that, as economic development proceeds, the adoption by developing countries of sophisticated production techniques and the installation of heavy industry in which economies of scale are prominent will exert a strong influence towards further concentration of industrial activity.

#### Inter-industry relations

51. The group discussed several theoretical and empirical factors that clearly suggest that inter-industry relations have become one of the major influences on industry location and on regional growth. First, industries tend to be attracted to localities endowed with ancillary facilities, or attracted to other industries whose output they use as inputs. Secondly, the establishment of a new industry generates stimuli to related industries; it raises the demand for products to be used as inputs and it raises the incomes of the factors of production thus indirectly increasing the demand for the output of consumer industries. If the new industry operates under increasing returns to scale, it tends to reduce costs and to stimulate interest in the establishment of industries using its output as input.

52. All of these stimuli provide an attraction for other industries to locate in the vicinity of the newly established one. Supplier industries can often reduce their prices by locating near their market. Also, if a new industry provides cost reductions to related activities through internal economies of scale, it is likely that these activities would tend to locate closer to their new source of cheaper inputs. Finally, higher incomes of the factors of production are in most instances spent locally on products of local-market oriented consumer industries. This spending stimulus causes such industries to cluster around the major producing units.

53. The external economies arising out of the complex network of interindustry relations were thus considered by most experts as a major factor leading to concentration of industrial activity.

#### Urbanization

54. The existence of external economies arising out of urban agglomerations has also been recognized by the experts as imparting a further stimulus towards centralization of economic activity. The reasons are many and varied. Plants located in major urban centres are able to utilize the services of laboratories and universities, enjoy the advantages of easy contacts with the banking and commercial world and benefit from the proximity of government apparatus and relative abundance of infrastructural facilities. On the other hand, the agglomeration of population and industry in large urban areas can be held responsible for considerable implicit and explicit costs, economic as well as social, for the nation as a whole. Pollution, high prices for urban land, traffic congestion, overcrowded housing, all require the provision of more and better facilities, thus necessitating large investment in infrastructure, housing and administration. To place limitations on city expansion would deprive many people of whatever benefits are associated with urban life.

55. The expense of providing low-income housing at subsidized rates was cited by one expert as an example of large implicit costs associated with urban population increase. The hidden costs of subsidized low-income housing consist of the distortions in the relative use of factors of production generated by the reduction of visible labour cost below the social value of labour to industries in urban areas. All experts agreed that such subsidization should be prevented from generating unwanted economic distortions, and that governments ought to exert great care in uncovering hidden subsidies, or implicit taxation in the provision of urban facilities.

56. Some countries have decided that the social costs of rising urban concentration exceed the social benefits and have pursued policies to limit city size. It was reported that the Union of Soviet Socialist Republics, for example, has prohibited new industrial construction in cities with a population exceeding one million because of uneconomical results due to high rising infrastructure costs in these cities. However, most experts believed that in most developing countries the "large" cities are still, with some notable exceptions, far below the size at which urban costs will exceed urban benefits. There was general agreement that very little "hard" information is available at present concerning the actual costs and benefits of urbanization. An extensive empirical investigation of these costs and benefits would be needed to provide the solid factual basis to form urbanization policies.

## II. REGIONAL PLANNING IN DEVELOPING COUNTRIES

### The nature of underdeveloped regions

57. Although regional development problems are common to many developing economies, the experts stressed that it is erroneous to think that a uniform diagnosis or planning solution can be offered for all. Regional objectives and problems vary from country to country and these differences must be taken into account for effective regional planning.

58. The nature of regional problems (and thus the policy prescriptions) varies also according to the type of region with which the problems are associated. The experts noted that underdeveloped regions within a country can be of three broad types: depressed regions, less developed regions and frontier regions. A depressed region is defined as one that has experienced economic growth in the past but which, for various reasons, has stagnated in recent times. This type of region is prevalent in industrialized economies. A less developed region is defined as one whose growth has been slower than the national average; it is prevalent in developing countries. A frontier region is defined as a sparsely populated area, with an unexplored natural resource potential, the exploitation of which could lead to rapid development of the region and to faster national economic growth.

59. There was unanimous agreement among the experts that development of any kind of underdeveloped region should be viewed as part of the attainment of national objectives. Regional planning is thus a means of implementing national planning objectives.

### The regional dimension of national plans

60. Planning has as its broad objective the increase of social welfare benefits to a nation. The general role of planning is thus to specify, reconcile and achieve the several social welfare objectives of a country. There are three basic stages to planning; first, social goals and objectives must be set and an acceptable balance achieved among them. Secondly, consistent approaches and possible optimum solutions to the attainment of the multiple goals should be explored. Thirdly, deviations from the planning model stemming from organizational and institutional constraints, which affect planning implementation, should be identified and, if possible, corrected.

61. There was general consensus among the experts that long-run growth in per capita output, although probably the principal goal in most developing countries, is never the sole objective. A broader definition of national planning objectives should include: (a) the attainment or maintenance of the desired balance between present and future consumption; (b) the attainment or maintenance of the desired pattern of income distribution; (c) the attainment or maintenance of some relationship between regional consumption and national growth, and (d) other objectives such as defence, national cohesion and hedging against unforeseen fluctuations.
62. The experts emphasized that at any time, future consumption can be increased through decreases in the current consumption. It may be possible to identify the limits below which current consumption cannot be cut, and hence establish a maximum rate of growth, as well as a minimum rate of growth that would be politically acceptable. The difference between these two rates of growth, which is often quite large, defines the range of feasible growth. The actual growth rate planned for will lie between these limits. When undertaking the formulation of national plans, administrators should plan for that particular rate of growth which most accurately reflects the country's preference between present and future consumption.
63. Attaining the desired type of personal income distribution must also be weighed against the objective of national growth. It is possible that measures correcting income inequalities can be detrimental to growth of economic output. The experts also stressed that the goal of income distribution should not be confused with the goal of maintaining a balance between regional consumption and national growth. Obviously, the basis for redistributing income should be people and not regions. Measures designed to decrease income inequality among regions do not always reduce over-all income inequality among people. Often the measures increase inequality by increasing personal incomes within regions.
64. The attainment or maintenance of some relationship between regional consumption and national growth is a third independent component of national social welfare. This component might take the form of securing regional income differentials; or of maintaining comparable growth rates among regions; or, more generally, of ensuring that minimum consumption levels are achieved in all regions.
65. Discontent arising from economic stagnation of underdeveloped regions can threaten national unity or cohesion. Thus a politically motivated demand for regional development may arise. Similarly, defence considerations or the desire

to hedge against fluctuations in income or in foreign exchange earnings might dictate the development of an underdeveloped region. In the latter instance, a country might decide on a policy of product diversification, particularly with respect to exportable commodities, in order to protect itself against severe change in income or foreign exchange earnings resulting from the reliance on only a few commodities. Such a policy could lead to a regional development decision which may not be justified on strict grounds of economic efficiency, but which may be quite rational as protection against financial uncertainty.

66. It is important, the experts emphasized, to realize that non-economic considerations often play a crucial role in deciding the development of an underdeveloped region and may, under special conditions, justify incurring the high costs involved in attempts to decentralize industry in a developing country. It was also noted, however, that where such non-economic considerations bear little relation to the accepted national objectives, they should not be allowed to interfere with the regional planning process.

67. The experts were in unanimous agreement that the main role of regional planning in developing countries is to facilitate the achievement of the multiple national objectives, and in particular the objective of striking a balance between regional and personal consumption needs on the one hand, and national growth on the other hand, that most closely reflects the over-all preferences of the country.

#### Methodological approaches to regional planning

68. A basic condition for the effectiveness of planning, whatever the objectives, is the adoption of a correct planning approach. There was agreement among the experts that a general equilibrium approach to planning is desirable so as to account for interindustry relations, solve the problems of interaction among economic units and make national social profitability rather than commercial profitability the basis for national resource allocation.

69. There was general agreement that, in principle, the choice of sectoral projects and the choice of location of each project should be undertaken simultaneously. In practice, lack of precise information and the existence of institutional obstacles make simultaneity difficult, particularly for long-term planning. Thus, for the long run an iterative approach to planning is indicated. However, such an approach must at all times recognize the interdependence between regional

and sectoral decisions. It must also make full use of all available feedback cross-information deriving from sectoral or regional developments.

70. The experts emphatically stressed that it is essential to maintain consistency between the sectoral and regional plan breakdowns of the national plan. This is very difficult to attain, often because of institutional reasons. In many developing countries sectoral planning is carried out by the national executive organs while regional goals and planning receive more attention in the legislative branch, with little consultation between the two. Nevertheless, some consistency must be attained. The penalty is the failure of the sectoral as well as of the regional plans.

71. A national plan can be broken down into sectoral or regional plans. The sectoral plans provide a disaggregation of the national plan by sectors of economic activity, the regional plans according to the economic activities undertaken in each region. In addition, national planning provides regional planners with those basic parameters (such as the social discount rate, the shadow prices of inputs and the shadow exchange rate) which regional planners cannot set themselves. Some experts observed that most developing economies employ sectoral breakdowns of their national plans but use only crude approximations of regional breakdowns. There is thus a real danger that regional objectives are neglected at the planning stage because of exclusive reliance on a sectoral planning approach. One expert saw as the main fault of the sectoral (branch) approach that in a sectoral model it is not possible to determine the influence of industry location on the expenditure level in many other industries, so that, as a consequence, the sectoral optimum may not coincide with the national optimum.

#### Techniques of regional planning

72. A correct approach to regional planning must be complemented by effective tools and techniques of planning. It is necessary, all experts agreed, that these instruments of planning not be applied blindly but be adapted to the conditions prevailing in developing economies.

73. The general planning difficulties caused by the lack of detailed data in developing countries are particularly serious in the case of regional planning. Most analytical techniques and theoretical planning models are developed in the advanced countries assuming a set of informational prerequisites which cannot be met in most developing economies. The introduction of these sophisticated tools



into planning in developing countries, without adaptation to the prevailing data availability conditions, poses grave dangers for the accuracy of forecasts and for the relevance of projections, thus imperiling the entire factual basis of policy decisions.

74. Where data is partial or imperfect, the cumulative effect of errors associated with the use of multivariable and complex analytical models may make a naive type of technique have greater predictive value than a far more sophisticated one. One expert remarked, for example, that interregional input-output techniques should be used with great care. The input-output technique assumes an integrated economy with substantial sectoral relationships, which do not, in general, exist in developing countries. Thus, the use of input-output for analytical planning at the regional level is severely limited, as it requires the impossible task of matrix inversion when as much as 90 per cent of the matrix cells are empty. Similarly, the use of input-output as a descriptive tool is limited because the familiar problems of aggregation and changing technical coefficients are much more serious in developing economies.

75. Another drawback of sophisticated models is that their very complexity creates a greater danger of misuse, in view of the limited skills of planners in developing countries.

76. Furthermore, with a very complex model, where the planner introduces the data at one end and gets the final results in terms of predicted values at the other, it is difficult to correct for obvious mistakes attributable to data imperfections. With a simpler model the planner can keep an eye on the unfolding of the planning process and can make qualitative adjustments of obvious irrelevancies and errors in light of the planner's own knowledge of the economy. It was generally felt that techniques can improve considerably the planning process, but can never be a complete substitute for human judgment and good economic common sense.

77. It was believed by one expert that in regional planning, the human judgment and economic common sense of the planners in developing countries could be improved by studying the regional planning experiences of other developing countries. Whereas a considerable amount of information of a general nature exists on planning and regional problems, there is a dearth of information on the actual mechanisms of regional planning and on the concrete problems encountered by regional planners in developing economies. Little is known about the problems

of regional planning when it is undertaken under conditions of uncertainty due to incomplete factual information and to changing economic conditions. Some experts felt, however, that such studies should be interpreted with great caution. The general frame of reference and attitudes of the planner policy-maker will tend to colour and unconsciously distort the reporting of the planning process, thus limiting the usefulness of the case study. Moreover, planning in various developing countries is undertaken under unique institutional and organisational constraints; this factor may considerably reduce the "transferability" to a country of the lessons gained by another country through its own experiences.

78. One solution to the problem of technique, suggested by some experts, is to use more than one (simple) technique for the same planning problem and then average the results. In general, there was agreement to the effect that any technique employed, especially in the field of regional planning, must be carefully evaluated according to the expected benefits (in terms of predictive accuracy) relative to the costs incurred (in terms of the use of scarce skills, research time and funds).

III. DOCUMENTATION FOR UNIDO'S INTERREGIONAL SEMINAR  
ON INDUSTRIAL LOCATION AND REGIONAL DEVELOPMENT

79. The group endorsed the holding of the Seminar.

80. The experts examined the consistency and adequacy of the industrial programming part of the documentation<sup>1/</sup> prepared by UNIDO for the Interregional Seminar on Industrial Location and Regional Development and advised the undertaking of additional research on various topics. The topics suggested are listed in annex 2 of this paper. They are divided into three groups (A, B and C) according to descending order of importance as determined by the experts' consensus. The topics within Group A and Group B are also listed in order of priority. Annex 2 also contains the preliminary outline of the Seminar.

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<sup>1/</sup> A series of country studies on industrial location and regional development policies were also prepared by UNIDO for the Interregional Seminar. Due to time and other limitations, this part of the documentation was not reviewed by the group of experts.

IV. GUIDELINES FOR UNIDO'S ACTION  
IN REGIONAL INDUSTRIAL PLANNING

81. The experts' consensus was that the basic objective of UNIDO should be the enhancement of the developing countries' own ability to deal with problems of regional industrial development and planning. This basic objective can be achieved through various complementary and mutually supporting research and technical assistance activities.

82. Most experts were also convinced that UNIDO's research activities in regional planning should be kept separate from, although closely co-ordinated with, administrative and operational activities. The group was of the opinion that a general separation of UNIDO's research functions from its other functions would greatly benefit the efficiency of the organization.

83. A first set of technical assistance measures should be designed to improve the professional capacity of administrators and planners in developing countries so that they are better able to cope with regional industrial problems themselves. A second set of measures should be designed to assist developing countries directly in the formation and execution of regional plans and programmes.

Indirect technical assistance

Operations guide on regional industrial planning

84. The experts strongly endorsed UNIDO's plans to compile an operations guide on regional industrial planning. The project was considered to be of urgency and great immediate usefulness, in light of the current absence of operational documents for consultation by regional planners in developing countries. It was stressed that such a document would be helpful to eliminate popular misconceptions and obsolete attitudes on regional industrial planning prevalent in many countries.

85. The experts offered various suggestions on the contents and format of the guide to enhance its impact and usefulness. The discussion was based on the tentative outline of the guide prepared by UNIDO (see annex 3). The following topics were deemed desirable for inclusion in the guide, in addition to or in conjunction with UNIDO's draft outline:

- (a) An introductory section surveying the social and political environment surrounding regional planning;
- (b) A simplified discussion of pricing and resource allocation as it affects regional growth;
- (c) A clear classification of planning levels and functions showing the relationships between national planning on the one hand and regional and sectoral planning on the other; including a discussion of the mechanism of transmission of national decisions to the local level;
- (d) A discussion of the application of social cost-benefit analysis to regional planning problems;
- (e) A discussion of the implications of modern technology for locational decisions;
- (f) A section outlining data requirements for different kinds of planning techniques and criteria, including forms, check-lists and similar material;
- (g) A compilation of case studies of regional planning in developing countries designed to complement and illustrate the general information included in the guide.

86. Most experts believed that the operations guide project should be undertaken on as large a scale as possible. If the guide is to be made a complete and useful operational instrument, a small-scale project will not be adequate, although it may be possible to start with a small pilot project. It was also felt by most experts that it is necessary that the guide be revised continuously in order to reflect the new insights and techniques developed in regional industrial planning. It was acknowledged that UNIDO might face difficulties in finding the qualified consultants or the financial means necessary to prepare the guide on the large scale envisaged. However, several members of the group expressed the belief that, for this important project, UNIDO would probably be able to obtain the support and active co-operation of foundations, universities or governmental research institutes. Finally, one expert pointed out the great importance of ensuring that the guide be actually used. It was felt that for that purpose serious and systematic promotional efforts should be made.

#### Dissemination of technical information

87. The experts agree that UNIDO should undertake the dissemination of technical information in the field of regional industrial development and planning. An important step in this direction is the preparation of the aforementioned operations guide on regional industrial planning. Another concrete measure would be to distribute to developing countries lists of current publications in this

field. Such lists could be easily compiled by UNIDO on the basis of periodic contributions of bibliographical material by public and private institutions engaged in research or applied work in the field. Finally, UNIDO should disseminate as widely as possible the results of its own applied research in this field, including a periodic review of the main points contained in field reports of technical assistance missions in regional industrial planning.

### Training

88. UNIDO should conduct training seminars and workshops for planners and administrators of developing countries. In this context, several experts stressed the remarkable success of UNIDO's training workshops in industrial project formulation and evaluation, which provide special training for technicians and policy-makers of developing countries. UNIDO should also examine the possibility of setting up multi-national research and training centres on regional industrial planning. Most experts were convinced that, for the time being, these training and applied research functions could best be carried out by superimposing them on existing industrial development centres, rather than by creating separate institutes. However, some experts also believed that the importance of regional planning would justify at a later stage, the creation of independent training and applied research centres in this field. One expert felt that research would be more effectively carried out in a centralized fashion, while decentralized centres would be more suitable for the dissemination of information and for operational activities.

### Direct technical assistance

89. UNIDO should pursue further its contacts with private or public institutions throughout the world with expertise in various aspects of regional industrial development and planning, compile a comprehensive list, and form a roster of those institutions that are willing and able to undertake UNIDO assignments of an advisory nature as part of their regular functions.

90. UNIDO should establish two separate categories: Regional Industrial Planners and Industrial Location Experts in its technical assistance experts' roster. Experts in these categories should be economists or industrial economists familiar with problems of industrial development and with experience and training in industrial location, regional planning or related fields. There was general agreement that, since regional development must be viewed as a total problem, UNIDO

technical assistance experts in regional planning and in industrial location should, whenever possible, work in co-operation with experts in related fields, such as transportation, housing, and resources.

91. The general consensus of the group of experts was that a clear distinction should be made between technical assistance missions on regional planning problems for the economy as a whole, and advise on location of individual plants. The nature of the mission, as well as the necessary qualifications of the expert, differ according to the dimension of the problem.

92. Advice on the macro-economic aspects of regional industrial planning should, as a rule, be entrusted to individuals with a solid training in economics, familiarity with planning processes and techniques, and specialization in the spatial aspects of industrial development. This type of assistance should encompass at least the following fields, depending on the needs of the requesting country:

- (a) Assist in the formulation of regional planning at the national level, that is, in the determination of the over-all pattern of geographic distribution of industry and of infrastructure throughout the country. This type of assistance should also take into account the influence of multi-national undertakings on national industrial location planning;
- (b) Assist in the formulation of regional plans at the regional level, that is, in the design of a programme of industrial development for a specific region within the country;
- (c) Assist in the organization, administration and implementation of regional planning at the national level or at the regional level;
- (d) Advise on the implications for national industrial location of multi-national co-operation or integration undertakings.

93. Advice on the micro-economic aspects of regional industrial planning should as a rule be entrusted to individuals with a considerable amount of practical knowledge of specific industries and with experience in dealing with concrete locational problems. This type of advice should centre mainly on the choice of location of a plant, project, or industrial complex.

94. The group emphasized that no effort should be spared to select top quality experts, in regional planning and industrial location as well as in technical assistance in general. One expert suggested that a possible means of developing a top quality group of experts would be to create a trainee programme for technical assistance experts. This programme, which, the expert emphasized, is

different from the "associate expert" programme, would enable young economists, already theoretically competent, to go along with established experts on industrial development missions in order to gain the practical experience they need through practical experience in the field. Such a programme, this expert believed, would stand a good chance of being independently financed by governments or private foundations.

95. Finally, there was general agreement to the effect that, whenever practicable, the services of competent experts from developing countries should be actively sought, since these individuals can provide direct insights in the realities of regional planning in a development setting. The group considered this recommendation valid also in relation to technical assistance programmes in general.



ANNEXES

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Annex 1Message of Dr. I.H. Abdel-Rahman, Executive Director of UNIDO

The key importance of industrialization for economic development is no longer disputed, and the efforts of the United Nations in recent years have been marked by an increasing concern with the need to accelerate the industrial development of developing countries. These efforts are borne out by the creation of the United Nations Industrial Development Organisation (UNIDO), which began operations on 1 January 1967.

UNIDO's major orientation is to meet the urgent needs of developing countries in accelerating their industrial development through promotional and operational activities supported by relevant research. These operational activities are undertaken at the request of governments, and are designed to assist them in carrying out surveys of industrial development possibilities at the regional, national, and multi-national regional levels; in formulating industrial development plans and programmes; in executing technical and economic feasibility studies to elaborate specific bankable projects and in the economic and financial planning and evaluation of specific projects, including the identification of possible domestic resources; and in advising at the various stages of implementation and follow-up of projects.

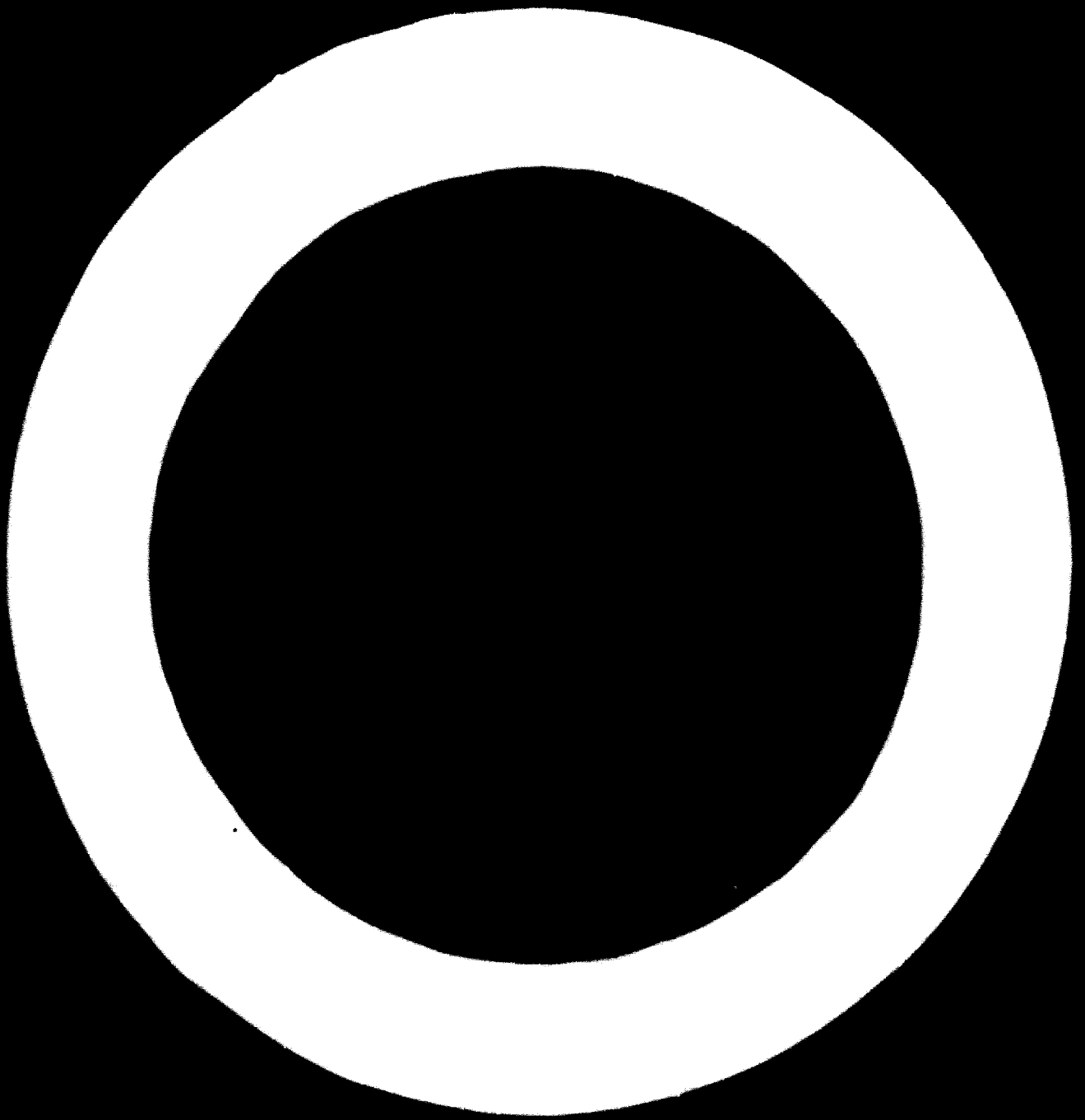
One of UNIDO's main areas of work is that of regional industrial planning, realizing that spatial considerations are often crucial in determining the effectiveness of industrial development plans, as well as the profitability of individual projects. In response to an increasing concern of developing countries with problems of industrial location and regional development, work in this area was begun by UNIDO's predecessor, the Centre for Industrial Development, in mid-1965. Following the unanimous recommendation of the Prague Symposium on Industrial Project Formulation and Evaluation (October 1965) to the effect that locational considerations are indispensable for correctly evaluating both the commercial and the national profitability of industrial projects, the Centre began preparations for an Interregional Seminar on Industrial Location and Regional Development, scheduled to take place in June 1968. Now that the organisation of the Seminar is in its final stages, it is particularly useful to present our work to the critical review of highly

competent economists in this field, in order to improve to the greatest extent the direct impact of the Seminar on industrial location planning and practice in developing countries.

UNIDO's work is centred on practical operational assistance to developing countries. Although regional industrial planning is a relatively new area of activity for UNIDO, a fair amount of progress has been achieved. At the request of governments, locational and regional aspects of industrial projects have been evaluated, job descriptions prepared, experts chosen for assignments, and a UNIDO mission on regional industrial development dispatched into the field. However, the capability to successfully carry out direct operational assistance depends, to a great extent, on the soundness of the approach used and on an understanding of the requirements of industrialization derived from analytical research of specific problems. This meeting has also been convened, therefore, for the purpose of building up our know-how, of testing the soundness of our ideas, and of receiving advice leading to the formation of guidelines to help in shaping a meaningful programme of activities in the field of regional industrial planning. It has been particularly gratifying to us that such a distinguished group of experts have accepted to attend the meeting and give us the benefit of their competent advice.

When drawing up the list of experts to be invited to attend, we set our sights very high indeed. Each of you is a man of the highest competence in economics in general and in regional planning in particular; as a group you reflect the prevailing intellectual trends in the field of regional planning. Different backgrounds are here represented - academic, government, industrial consulting. Finally, this group reflects the approaches adopted in different economic systems. The combination of the common denominator of competence and experience with diversity of approaches and of background makes me confident that this meeting of minds will be an extremely productive one.

May I sincerely thank all of you for your participation.



Annex 2

Part 1

Interregional Seminar on Location of Industry and Regional Development  
Preliminary Annotated Outline

It is proposed that the Seminar should focus on four main questions: Objectives of industrial location policies; Factors determining the geographic distribution of industrial activity, and their influence on national or regional growth; Methods for programming the geographic distribution of industry, in line with a given location policy; Measures to promote the achievement of industrial location policy objectives and of the regional programmes which reflect these objectives.

It is expected that discussion of these questions will draw substantially on country experience.

I. OBJECTIVES OF INDUSTRIAL LOCATION POLICY

Since industrial location policies are instruments to promote the achievement of certain aims of development, the question arises as to what these aims should be. Should industrial location policies be oriented towards the aim of maximising the national rate of industrial growth over a specified period, so that the regional distribution of industrial activity would follow as a corollary; or should the achievement of regionally balanced economic growth, alongside the aim of maximising the national rate of industrial growth, also be an objective of industrial location? Under what circumstances are these two aims compatible? Are such circumstances likely to be obtained in developing countries? When circumstances are such that these aims are competitive, at what stage in the process of industrialization should the emphasis be shifted from the aim of maximising the national rate of industrial growth to the aim of balanced regional development?

II. INDUSTRIAL LOCATION FACTORS

The aim is to identify the patterns of industrial location which are, at different stages of industrialization, most suitable to achieve the growth objectives of developing countries. Thus, the following points need to be explored:

(a) patterns of geographic distribution of industry in various countries, and structure of the concentrated and of the dispersed industrial activities (as may be indicated by several economic characteristics, such as factor proportions, average size of plant, productivity and the like); (b) relationship between the geographic distribution and national or regional industrial growth objectives.

Location factors will therefore be analysed in order to determine and quantify their role in: (a) generating a given pattern of geographic distribution of industry, and, (b) in influencing industrialisation in developing countries.

The following location factors are here proposed for investigation:

#### Factor endowments

This heading will consider the availability in a given region of the principal factors of production. Availability of capital, of labour and of natural resources will be examined. The term "natural resources" is here defined to include, in addition to direct inputs, those environmental factors which generally contribute to the efficiency of the production process, as, for example, climate or availability of water.

#### Transport costs

Emphasis will be put on: general availability and reliability of means of transportation; cost of transporting finished products for various types of industries, as an indicator of the importance of "proximity to markets"; general incidence of freight on total production cost as an indicator of the importance of "proximity to inputs". An attempt will also be made to quantify the impact of freight differentials on regional economic inequalities.

#### Scale economies

This heading will examine the role of increasing returns to scale in enhancing or minimising the relevance of other location factors. Both scale economies in the strict sense (resulting from an increase in production within the same technical process) and increasing returns arising out of shifts to a different process will be analysed. The latter type should receive greater attention, as in a developing economy productivity increases are more often achieved by shifting to more advanced methods rather than by increasing the scale of production within the same technical process.

The objective of the discussion under this heading will be to identify the proper balance, for different industries, between increasing returns and transport costs and other location factors.

### External economies

(This heading covers also the following two. They are kept separate here for the sake of easier treatment.)

The analysis will cover both the economies external to the firm but internal to the industry and those external to the industry. Some relevant points for discussion are: formation of a pool of operative, managerial and technical skills (not specific to any given industry); faster transmission of administrative and technical know-how; effect of the rate of industrialization or the risk of investment.

### Infrastructure

The term "infrastructure" is defined as the set of those goods and services which are basic to the carrying on of general economic activity.

An attempt will be made to quantify the costs of different types of infrastructure and their benefits in terms of the efficiency of industrial activities and growth of the area, and to determine the optimal degree of excess capacity in this sector, which will provide the flexibility needed to support further activities without freezing an excessive amount of development funds.

Also important is the timing aspect of infrastructure development - where and under what circumstances is infrastructure a necessary prerequisite for industrial growth; where and under what circumstances can it be expected to follow industrialisation?

### Inter-industry relations

Both the static and the dynamic aspects of the question should be explored. Some relevant points are: the need for auxiliary industries and services; the optimum degree of vertical integration of production (with particular attention being given to agro-industrial complexes); the possibility of backward and forward linkages, and the relative importance of each.

### Case studies

A number of case studies should be analysed in order to illustrate the findings reached upon examination of the above location factors. The case studies should, as far as possible, have a uniform analytical framework, in order to ensure comparability.

### III. METHODS AND CRITERIA FOR PROGRAMMING INDUSTRIAL LOCATION

Part III will deal with the following topics: planning techniques necessary for successfully carrying out a location programme in countries at various levels of development; planning skills required by such a programme; consistency between national and regional location plans; connexion between a plan expressed in terms of gross aggregates and actual location of single projects.

In this respect, the documentation and the discussion can be divided among the following headings:

- (a) Data requirements;
- (b) Selective summary of techniques for location of individual plants;
- (c) Selective survey of techniques for broader industrial location programming;
- (d) Implications of using different techniques, for various types of industries and countries;
- (e) Consistency between national and regional programmes;
- (f) Operational connexion between aggregate programmes and techniques for the location of individual plants;
- (g) Possibilities of computer utilization.

### IV. INSTRUMENTS OF INDUSTRIAL LOCATION POLICY

Policy instruments at the disposal of governments to influence the distribution of industrial activities among the regions of a country and, specifically:

- (a) to induce industrial enterprises to settle into a backward region of a country;
- (b) to mobilise the resources of a specific region of a country, especially a backward region, for the region's own industrial development; and
- (c) to prevent the establishment of industrial enterprises in industrial urban centres that have reached or exceeded a critical size beyond which diseconomies will arise.

The examination of the policy measures mentioned below should differentiate between instruments at the disposal of the central authorities and those at the disposal of regional authorities with due regard to inter-country differences



in the respective spheres of central and regional authorities. An attempt should also be made to define the optimum degree of decentralization of decision-making authority.

The application of measures by a diversity of department at different levels of government raises the question of how to co-ordinate, at the regional level, (a) measures initiated by various departments of the central government and (b) measures initiated by the central and regional governments.

Among the various policy instruments to be considered, the following may be given particular attention:

- (a) Fiscal instruments, notably tax exemptions;
- (b) Financial instruments, notably direct subsidies and loans at low interest rates through special institutions for financing industry;
- (c) Technical assistance (advisory services, extension services) to industrial enterprises;
- (d) Measures in the fields of transportation and of supply of power or water, affecting the availability of these services or the terms on which they are provided;
- (e) Industrial estates;
- (f) Controls and licences regulating the location of industrial establishments;
- (g) Government participation in, or ownership of, key industries;
- (h) Assistance in training or retraining of industrial workers;
- (i) Subsidies for housing for industrial workers.

## Part 2

### List of additional research topics recommended by the group of experts

#### Group A - Priority topics

"Labour Mobility, Labour Skills, Costs of Training and Other Aspects of Labour as a Factor of Industrial Location in Developing Countries"

"Impact of Multinational Integration or Co-operation Undertakings on National Location and Regional Planning Criteria and Programmes"

"A Review of the Experiences of Developed Countries in Industrial Location and Regional Development, With Particular Reference to Its Applicability to Developing Countries"

"Organizational and Institutional Aspects of Regional Planning in Developing Countries"

Group B - Desirable topics

"Social Aspects of Industrial Location and Regional Development in Developing Countries"

"A Review of the 1971-1980 USSR Scheme for Location, and Applicability of Its Procedures to Developing Countries"

"The Relation of Physical Planning to Regional Economic Planning"

"Data Requirements for Regional Research, Including a Discussion of the Problems of Data Collection and Elaboration in the Field of Location and Regional Development"

"Market Imperfections and Regional Growth in Developing Countries"

Group C - Other topics suggested

"The Sectoral Versus the Regional Approach to Economic Planning"

"A General Equilibrium Model of Location and Regional Growth"

"The Role of Natural Resource Availability in Determining Location and Regional Growth Patterns in Developing Countries"

"Approximation Methods for the Determination of Regional Output-Mixes"

"The Notions of Social Cost and of Private Cost"

"Growth Poles, Urbanisation and Regional Development in Developing Countries"

"Iterative Solutions to the Problem of Achieving Consistency Between National and Regional Plans"

"Mechanisms of Geographic Transmission of Growth"

"Regional Accounting Methods"

"Unbalanced Regional Planning"

"Methodological Problems of Industrial Location in the USSR."

Annex 3

Scope and tentative annotated outline of an  
"Operations Guide to Regional Industrial Planning"

Scope

Many developing countries are increasingly concerned with the spatial aspects of development planning, recognizing that decisions as to where to locate industrial projects can be as crucial for their success as the decision to undertake them at all. In addition, many governments are subject to considerable internal political pressure concerning the regional distribution of industrial investment. The application of rational principles and procedures for geographic industrial investment allocation would considerably enhance the effectiveness of national development planning for national development goals.

The "Operations Guide to Regional Industrial Planning" will provide planners in developing countries and technical assistance experts with basic reference information on the planning of industrial location, and with clear techniques and procedures for carrying out regional analyses. It is intended to be usable as a directly operational handbook of basic concepts and methodological tools. It is not expected to be a comprehensive manual of high programming sophistication and economic rigor, but rather a short review of basic concepts, techniques, and reference material. The Guide should be specific and clear enough to stand on its own as a handbook for regional industrial planning, and yet comprehensive enough to serve as a source of leads to more advanced methodology and available research material. It should contain, wherever possible, clear examples of how to apply the principles and procedures explained to specific cases. It should also serve as a basis for developing teaching material in the field of industrial location and regional planning. The Guide should be not over 200 pages in length (excluding annexes), neatly structured, and simply written. It should be usable by anyone with an understanding of elementary economic principles and some background in programming methods; however, it should avoid sacrificing precision for the sake of simplicity of language.

## Tentative outline

### Introduction

General setting of the problems relating to the geographic distribution of industrial activity in developing countries, including the necessity to take into account spatial considerations within national plans, the importance of adopting a consistent and uniform framework for decision-making in this field, the need to elaborate (and follow) simple definitions of fundamental notions, and the applicability of principles and procedures developed in other countries. Clear statement of the need to regard locational decisions as interdependent, to view regional planning as a dynamic process, and to evaluate the advisability of adopting any given location planning technique by comparing the expected benefits with the costs in terms of research, time and effort.

### Chapter I - Criteria of regional industrial planning

A setting forth of the detailed criteria and specific considerations governing regional industrial planning, based on the objective of achieving long-run national economic growth... Various planning levels: location planning at the national, regional and local level; location planning at the national, sectoral, industry and project level... The need to maintain consistency among the plans at different levels, due to the logical interdependence between all levels, whether of a functional or of a geographic nature... A more detailed review of the main location factors: (a) factor endowments (land, labour, capital, others); (b) transportation; (c) agglomeration economies (economies of scale, localization economies, inter-industry and urbanization economies)... Factors making for a concentrated pattern of industrial activity, and factors making for a dispersed pattern... Locational orientation of industries and its changes through the process of economic development... Relationship between spatial pattern and theory of economic development, such as nurturing of growth poles... Influence of the main location factors on the locational pattern of industries of different structural characteristics... Interdependence of locational decisions on different projects; linkages and locational patterns... Regional comparative advantages to be viewed in a dynamic context; regional factor "endowments" subject to change through time as the result of conscious policy decisions... The results of location planning experience in developing countries.

## Chapter II - Methodology of regional industrial planning

(a) Techniques focussed mainly on the industry as the unit of analysis: industry locational analysis, industrial complex analysis... (b) Techniques focussed mainly on the region as the unit of analysis: regional studies, regional multipliers, the "shift" technique... Interdependence between the two kinds of techniques and necessity to look at both sides of the coin... (c) Techniques which combine the industry and the region levels: multi-regional input-output, interregional linear programming, cost-benefit analysis... (d) Principal coefficients of analysis: the localization coefficient, the location quotient, the coefficient of spatial variation and others... (e) Tools of implementation of locational decisions, including the determination of national shadow prices on the basis of regional and local relative scarcities... (f) Descriptive tools: the localization curve, cartographic representations of various kinds. Uses, advantages, and drawbacks of each of the above, in view of expected marginal benefits and research or data collection costs. Examples of the application of the various techniques in specific empirical studies will be included: checklists, charts, dummy tables etc. will be used to illustrate the practical application and procedure of each technique explained above.

## Chapter III -- Organization and preparation of regional studies

An outline of how to set up a regional industrial planning office (including staffing and financial requirements) and conduct a regional economic study for a correct choice of industries to be located in the region... The topics will include defining objectives of regional analysis and reconciling multiple objectives; formulating working hypotheses and identifying the statistical tools appropriate to the testing of each; identifying key areas of study (in view of previous experience, of current basic national or regional targets, or of theoretical considerations); mapping out the research approach, and planning the work process, including a detailed enumeration of key tasks and an elaboration of clear and detailed procedures, budgeting and planning staff requirements and organizational lines.

**APPENDIX I - Glossary of terms**

Simple definitions and explanations of the terms used in locational and regional analysis, in order to familiarize people in the field with the terms and permit them to avoid the confusions and misunderstanding stemming from terminological differences between languages and conceptual differences between notions evolved in different economic systems.

**APPENDIX II - Annotated bibliography on location of industry and regional planning**

The bibliography is to be cross-indexed to serve as an easy source of reference; extensiveness is to be sacrificed to relevance, and only easily obtainable items should be included; basic theoretical material will form a necessary but minor part of the bibliography.

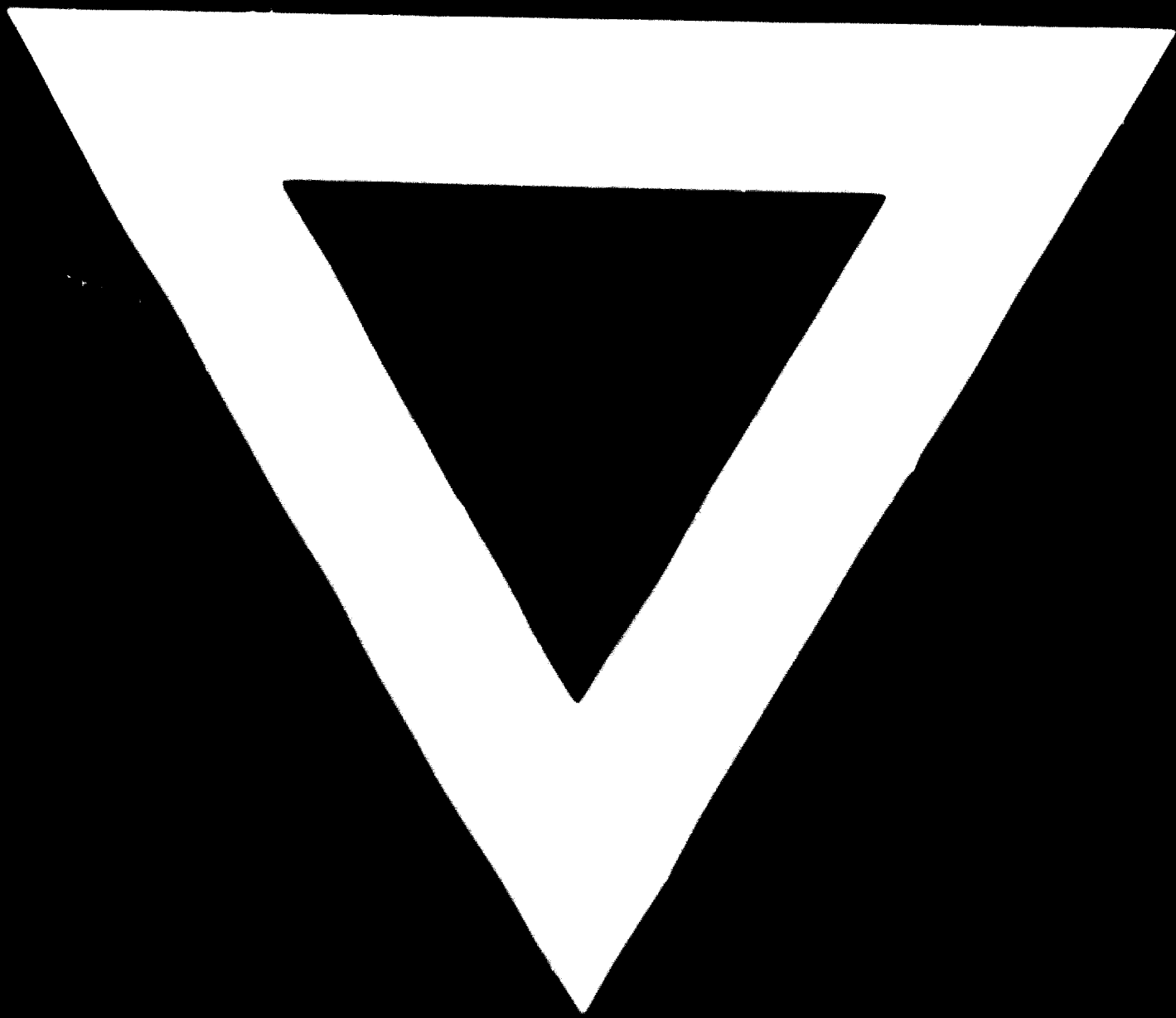
Annex 4

List of participating experts

William ALONSO	United States	Professor of Regional Planning, University of California at Berkeley
Benjamin CHINITZ	United States	Professor of Economics, Brown University
Paul Henri DAVID	France	Inspector, French Ministry of Construction
Antoni KUKLINSKI	Poland	Head, Department of Space Economy and Regional Planning, Polish Academy of Sciences
Arkki LAATTO	Finland	Research Fellow, State Council for Social Science (Finland)
Louis LEFEBER	Venezuela	Professor of Economics, Brandeis University
Constantine NICHALOPoulos	Greece	Assistant Professor of Economics, Clark University
Stanislav A. NIKOLAEV	Union of Soviet Socialist Republics	Chief, Regional Development Sector, Council for the Study of Productive Forces, Gosplan
Emanuele TOSCO	Italy	Chief Economist, Italconsult

Ray B. Helfgott and Salvatore Schiava-Campo also participated, and acted  
as Chairman and Rapporteur-Technical Secretary, respectively.





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