PROPOSALS OF THE IIASA REGIONAL DEVELOPMENT INFORMAL ADVISORY COMMITTEE

(March 7-9, 1978)
IIASA - Laxenburg

April 1978 WP-78-13

2361
Laxenburg
Austria

International Institute for Applied Systems Analysis

Foreword

In accordance with the IIASA Research Plan, 1977 was a planning year for the Regional Development Task. During this period a special Task Force Meeting devoted to regional development was held, the main goal of which was collective discussion and choice of the most appropriate directions for future IIASA Regional Development activities.[1]

A broad spectrum of regional problems, starting from theoretical analysis and ending with proposals for the organization of practical case studies, were discussed. The focus was on problems of feasibility of constructing a generalized system of models, interregional equality of access to services, and coordination between national and regional goals, among others. Also, the problems of interaction between Regional Development work and other IIASA activities (resources, human settlements, management problems) were brought up.

During the discussions there was general agreement among representatives from 13 National Member Organizations that the following requirements for any IIASA Regional Development work should be met:

a) the general idea of IIASA's Regional Development activities is not only to elaborate its own approach, models, and so on, but firstly to build upon the research already achieved in the Institutes of NMO countries;
b) the necessity of elaborating a system of models in such a way that the likelihood of achieving practically fruitful results is maximized;
c) development of the theoretical analyses must be done in parallel with the practical work;
d) IIASA's Regional Development models must be designed specifically from the required information; and
e) every part of the models elaborated in IIASA activities must be approved in one or more NMO countries.

Taking into account the key role of the meeting of IIASA's Council Members in May-June 1978 for the choice of future directions of this Institute's activities, it was decided to hold an Informal Advisory Committee

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[1] See The Strategy of Future Regional Economic Growth, M. Albegov, ed., Proceedings of a Task Force Meeting on Regional Development, April 19-21, 1977, International Institute for Applied Systems Analysis, Laxenburg, Austria, CP-78-1, March 1978.

in March 1978 to discuss in more detail the proposals for Regional Development activities; the results of this meeting were prepared, until recently, as an internal document and include the following four directions of activities:

1. Comparative analysis of regional planning methodology.
2. Framework of Regional Development system of models.
3. Regional Development case studies.
4. System of Regional Development computer programs.

The results of this Informal Advisory Committee Meeting are elaborated in the following pages.

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April 1978

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1. INTRODUCTION

Problems of regional development planning and forecasting have met a growing interest of scientists, planners and decision makers throughout the world. Regional planning itself developed into an interdisciplinary activity in which economists, sociologists, technical experts as well as policy makers actively participate.

Strong interest in IIASA activities in the field of regional planning was expressed by the NMOs, Bulgaria, the GDR, Hungary, Italy, Japan, Poland, Sweden and the USSR.

2. BASIC FEATURES OF REGIONAL FORECASTING AND PLANNING

Regional development planning problems fall into two broad categories:

1) the specification and coordination of public action, especially sectorial investment policies within a specific subarea of a nation in order to achieve national and regional objectives; and
2) the development of a national or international policy with respect to specific systems of regions which may themselves be nations or groups of nations.

Planning for a single region in principle cannot be carried out without reference to the system of regions in which it is embedded. Nevertheless, for operational purposes planning for a single region often is being performed.

Whether done for a single region or a system of regions, regional development planning requires the following activities:

1) definition of a preliminary set of objectives;
2) identification of major economic, sociological and political problems;
3) analysis of major interrelationships between relevant variables and construction of a complete but operational model;
4) possibly reformation of the set of objectives; and
5) final formulation of a set of feasible and efficient decisions.

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3. REGIONAL SUBMODELS

The complexity of regional planning problems requires the construction of a set of submodels related to specific fields. As such may be mentioned:

a) agricultural and industrial location and relocation model;
b) residential location and social infrastructure model;
c) transporation and technical infrastructure model;
d) natural resources model;
e) labour market model; and
f) environmental model.

In many countries experience is gained in the analytical treatment of regional problems. This experience is, however, dispersed and corresponds to problems and conditions in different countries. In order to systematize this experience it is important to set up a research program corresponding to the status of IIASA as an important international scientific center. In this research program major inputs should be the experience gained in the use of econometric techniques in the USA, the Netherlands, France and other countries. Important contributions in the field of optimization techniques could be expected in countries with planned economies. Regional environmental problems are studied particularly in Japan, and the USA. Territorial productive complex analysis should be a major input from the USSR.

4. THE NEED FOR INTEGRATION

Regional planning does require the integration of the submodels or simplified versions of the submodels into an integrated system. Such an integration is indispensable mainly because of the interrelations between variables in the different submodels which could result in important feedbacks particularly if the submodels refer to a system of regions. It must be considered as an important task for IIASA to contribute to the knowledge and experience in the field of the integration of submodels into a complete but yet operational integrated model.

5. INTEGRATED MODELS AS A TOOL FOR DECISION MAKING

Integration of submodels is not only important for analytical purposes but just as well for the formulation of a set of mutually consistent objectives. Only adequate knowledge of interrelations between the variables in the different submodels is able to determine the final effects of the use of different instruments used in the decision making in the nation or the region.

If the final model is in part an interregional model it moreover contributes to the regionally differentiated use of instruments in order to contribute as much as possible to the welfare of the system as a whole.

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6. A PROGRAM PROPOSAL FOR IIASA

The research program has three components:

1. Comparative analyses of regional planning approaches and methodology across market and planned economies.
2. Development of improved partial and general models for regional analysis and planning.
3. Participation in case studies of regional planning in progress.

The intent of this structure is to ensure that the work on development of new models and methodology is firmly grounded in the experience of regional planning in the field. Each component should reflect this concern.

Specifically, in the comparative analyses there will be an effort to evaluate existing models and models about to be used in terms of the specific needs of, and problems arising in, the case-studies. The case-studies in turn will utilize, as far as possible, the best of the models. This will then provide experience with the use of these models which will generate important new insights for developing better and improved partial and general models for use in diverse regional development situations.

TASK 1. COMPARATIVE ANALYSES

This component will serve two functions. First, it will provide a review phase to identify models now used or clearly of potential use in regional planning that might be employed in the cases. Second, it will yield a document that identifies and compares models and approaches in use in market and planned economies. A comprehensive comparison across nations of regional planning organization, methods and range of action is not possible within the resource constraints of the Program. Thus, the task will focus on usable methods that are likely to be relevant for the case-study effort.

TASK 2. MODEL DEVELOPMENT

A central purpose of the research program is development of improved general and partial models for use in regional planning. IIASA provides a unique opportunity for synthesis and parallel work on models that have been developed for planning in market and planned economies. In particular, it is important to explore behavioural and optimization models and their interaction. It is proposed to begin work on a system of models for regional development planning with special attention to a limited number of subsystem blocks.

The models will be combined in a system general enough to deal with major regional development problems. This means that the models should be sufficiently complex to include all major regional subsystems, and at the same time, compact enough to be operational. Since the number of conceivable submodels in such a system may be very large, their combination is a difficult task and must be approached by stages.

Initially, a framework for a full system will be sketched out, and work will begin on selected submodels that relate closely to the case analyses. Specifically, the submodel pertaining to the industrial-agricultural specialization will be attacked first. An empirical grounding for the system will in this way be established, since this submodel is essential to the case-studies to be conducted.

TASK 3. CASE-STUDIES

Case-studies are critical elements of the IRD research Program. As conceived here, the cases are not intended as descriptions, but rather as means for the development of improved methods. For this reason, the proposed cases in the Notec Region of Poland and the Silistra Region of Bulgaria represent instances in which major regional planning efforts are presently underway. IIASA scientists would be involved in these projects not as observers but as advisors on difficult technical problems, and in particular on directions of agricultural and industrial specialization. The cases therefore differ basically from previous IIASA case-studies and should reinforce the objective of integrating model development with practice.

SUPPORT TASK

In support of the previous tasks, it will be necessary to develop computer programs and data bases. Computer capability should grow in parallel with the main tasks of the research program, especially in view of the interrelated nature of the model.

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The foregoing activities would be expected to provide us with new substantive knowledge and methodologies for improved regional development policy making in both planned and market oriented countries. Use of limited resources over space, and harmonization of regional plans in order to achieve regional and national objectives may be improved as a result.

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The members of the Informal Advisory Committee reviewed the draft of the proposals of IIASA's Regional Development activities for 1979-1983 which focuses on the organization of four tasks, and found the general direction of this appropriate. The Informal Advisory Committee believes that conditions presently exist for the acceleration of IRD activity. It is proposed that IRD activity should concentrate on regional agricultural and industrial specialization and identification of the regional welfare growth potential which should create the main theme and focus for the future activity.

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Regional Development Task – IIASA

APPENDIX

Some Possible Contributions from Cooperating Institutions

1. At the University of Pennsylvania and Cornell University the regional science groups under the direction of Professor Walter Isard is conducting basic research on choice of specialization among regions using non-optimization techniques. They are particularly interested in water and air pollution problems and eager to exchange experience and findings of models.

2. At the Systems Research Institute, Polish Academy of Sciences, Warszawa, under the direction of Professor Roman Kulikowski and at the Poznan Academy of Economics under the direction of Professor Ryszard Domanski, groups are conducting research on the use of control theory in developing meaningful policy strategies. They are particularly interested in incorporating scale problems and the estimation of externalities in their models.

3. At the University of Economics and Institute of Planning, Budapest, research groups associated with Professor Gyula Bora are conducting research on the location of industry, agriculture, and public services. These groups are particularly interested in the relocation of industry away from major metropolitan regions.

4. At Kyoto and Gakushuin Universities in Japan, research groups associated with Professor Yoshikazu Sawaragi and Tatsuhiko Kawashima are conducting basic research relating to water and noise pollution and agglomeration factors in highly urbanized regions. The effects on the efficiency of production and quality of life are of especial interest.

5. At the Netherlands Economics Institute, research teams under the direction of Professor Leo Klaassen are conducting research on comprehensive interregional models of an operational character. They are particularly interested in the labour market and the migration submodels and desire to interact with the IIASA project in this area.

6. At the Siberian Institute of Economics, Novosibirsk, research groups under the direction of Academician Abel Aganbegyan and at other institutes in the USSR are conducting basic research on optimization models. They are particularly interested in the development of specific industrial complexes for each region of a system (statement to be approved).