

SYSTEMS RESEARCH INSTITUTE  
POLISH ACADEMY OF SCIENCES

INTERNATIONAL INSTITUTE FOR APPLIED SYSTEMS ANALYSIS

CONTRACTED STUDY AGREEMENT REG /POL/ 1

**"CONCEPTS AND TOOLS FOR STRATEGIC REGIONAL  
SOCIO-ECONOMIC CHANGE POLICY"**

**STUDY REPORT**

**PART 2**

**POLISH CASE STUDY REPORT**

**COORDINATOR, IIASA: A. KOCHETKOV  
COORDINATOR, SRI PAS: A. STRASZAK**

ZTS/ZPZC/ZTSW 1-36/85

WARSAW 1986

SYSTEMS RESEARCH INSTITUTE  
POLISH ACADEMY OF SCIENCES  
AND  
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STUDY REPORT  
Consisting of 3 Parts

PART 2  
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This report presents the main portion of results obtained in the research performed under the Contracted Study Agreement REG/POL this agreement being between the International Institute for Applied Systems Analysis (IIASA) in Laxenburg, Austria, and the Polish Academy of Sciences, Warsaw. Contents of the research effort was defined by Prof. Andrei Kochetkov from IIASA, and the in-house work has been directed by Prof. Andrzej Straszak of the Systems Research Institute, Polish Academy of Sciences. According to the Agreement the research has been carried out under the heading of "Concepts and Tools for Strategic Regional Socio-Economic Change Policy".

The present volume (Part 2) shows results of a study undertaken for a regional development case in Poland, where strategic issues are of primary importance.



Warsaw, 1986

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PART 2: POLISH CASE STUDY

SUMMARY

The volume contains description of the specific case research undertaken within the Contracted Study Agreement REG/POL/1. The case was chosen so as to reveal in a clear manner the strategic aspects of regional development, in terms of internal dynamics of regional socio-ecological processes, of their analysis and forecasting, planning and strategy implementation. The issues presented were to be so well-defined as to provide a good educational basis for experience transfer, both in problem perception and in method of analysis used. Additionally, it was deemed proper to consider a case in which technological change would play an important role in strategic future of the regional system.

The regional case considered satisfies these requirements. In a predominately agricultural region in Poland a large mining and power generation development is taking place. This development has a definite life span, at least with regard to its initial contents and scale: some 40-50 years from now. Decisions to be taken have to take into account technological options and external changes.

The present volume is divided into five chapters. First chapter describes the case studied.

Chapter two describes future technological options mainly within the power generation domain, primarily with the intention of their consideration for the region's strategic analysis. Technology is also looked at in the third chapter, where certain socio-economic conditions for technological change in agriculture of the region are analysed via application of an LP model of regional agriculture. In the fourth chapter, analysis is presented of potential bases for planning the future supply-demand balances of water available within the region, as one of the resources crucial for further development of the area.

Chapter five presents the actual contents of the cross-impact forecasting analysis, conducted along the lines presented in Part 1, Chapter II, i.e. the issues formulated and assessed,

the events defined on the basis of issues and their assessments, subjective probabilities related to these events and to their causally linked pairs, and finally simulation results based upon the subjective probability values. Appropriate comments refer both to the substantial contents of the results obtained and to the strategy-bound behaviours motivating particular probability assessments.

Thus, this report provides an important body of substantial and methodological experience, which can be transferred to other -multiple-similar cases.

## INTRODUCTION

by Jan W. Owsiniński

Contents of this volume reflects the research conducted in 1984/1985 on a specific case of regional development in central Poland, chosen because of its very well pronounced features related to strategic development problems, and because of existing experience and expertise both within the study team and in this region.

Thus, first chapter of this volume (Part 2 of the Report) is devoted to general description of the regional problematique considered, and therefore partly to justification of the choice made with regard to this case, emphasizing the time horizon and implications thereof, as well as potential methodological choices.

Main body of the actual analysis referred to methodology of cross-impact analysis, as a set of techniques serving to elaborate forecasts, and in this particular application: to elaborate long-term regional development forecasts. Second chapter of Part 1 of the Report contains description of the cross-impact methodology used and of its variants. Besides this, mainstream here, analysis, there are several parallel studies, accompanying it, concerning narrower, sectoral areas, and employing a variety of other approaches.

Namely, one of the results of the cross-impact analysis is elicitation of the issues or problem areas crucial for future long-term regional development. These can then be taken for a closer dissection. Thus, chapters two and three present such more detailed examinations of two sectors, with particular attention paid to technological options and possibilities of a technological shift or succession in these two sectors: power generation and agriculture. A third sector is taken into consideration in the fourth chapter, namely that of water resource economy, and it is analysed from the supply-demand balance point of view.

Then, the fifth chapter is devoted to presentation of the substantial contents of the analysis. It should be mentioned

that this analysis involved a session with participation of a number of local decision makers, designers, and representatives of central institutions involved in the development. The role of this analysis was to develop an image of future development of the region, but also to look at the kind of mental constructions behind the numerically expressed opinions of the experts involved.

Thus, this volume of the Report shows a well-structured experience in strategic regional development analysis, in which emphasis was placed upon the effective link between the formal methods and human expertise, especially in dealing with a far-off perspective, and on the diligent and comprehensive use of methods usually known up to date. Thinking of opportunities and challenges created by new developments and new technologies may necessitate new cognitive and prescriptive tools, which must then be found, but they primarily grow out of the proper use of those existing before. With that respect, reference can be made to Chapter I of Part 1 of the Report.

IBS

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STUDY REPORT

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