

NATO Science Series

Edvard Kobal
Slavo Radosevic
(Eds.)

**MODERNISATION OF SCIENCE
POLICY AND MANAGEMENT
APPROACHES IN CENTRAL AND
SOUTH EAST EUROPE**

Cataloguing-in-Publication Data applied for

ISBN

Publisher

Contents

Preface (S. RADOSEVIC & E. KOBAL)

Acknowledgements (E. KOBAL & S. RADOSEVIC)

Introduction (E. KOBAL & S. RADOSEVIC)

Welcoming Remarks and Introduction to NATO Science Programmes (P. RAMBAUT)

PART I Issues in Science and Technology Policy

Chapter 1 From Central Planned Economy to Knowledge-Based Society (E. KOBAL)

Chapter 2 The Knowledge-Based Society in South East Europe (E. KOBAL)

Chapter 3 Elements of National Science and Technology Policy (E. KOBAL)

Chapter 4 Prioritisation in S&T and Selection of R&D
Project Proposals – (Mis)Use of Western Models in South East Europe (Đ. KUTLAČA)

Chapter 5 Transformation of Research and Innovation Policy in New EU Member and Candidate Countries: What Can We Learn from It? (S. RADOSEVIC)

PART II Country Science and Technology Policy: An Overview

Chapter 6 Science and Technology in the Republic of Croatia (N. ŠVOB-ĐOKIĆ)

Chapter 7 Science and Technology Status in Bosnia-Herzegovina (L. TANOVIĆ)

Chapter 8 Science and Technology Policy in Serbia and Montenegro (Đ. KUTLAČA)

- Chapter 9 Research and Development (R&D) in the Republic of Macedonia (Z.T. POPOVSKI & V. STEFOV)
- Chapter 10 Science and Innovation Policy in Bulgaria (M. SLAVOVA)
- Chapter 11 Current Issues of Research, Development and Innovation in Romania (A. VASS)
- Chapter 12 A National Science and Technology Policy Overview: Greece 2004 (D. DENIOZOS)
- Chapter 13 Central European Countries
- Reforms in the Field of Research, Development and Innovation in Hungary (Z. PEREDY & J. IMRE)
 - National Innovation System in Slovenia (M. BUČAR)
- Chapter 14 Regional Technology and Innovation Policy (G. H. WALTER)
- PART III Management in Science, Peer Review and Lobbying for R&D**
- Chapter 15 Human Resources Management for Improvement of R&D Competitiveness (M. KOMAC & M. BERTONCELJ)
- Chapter 16 Management of Quality and Finance in Research on the National Level (Janez SLAK, Miloš KOMAC, Nada ŠVOB - ĐOKIĆ, Slavo RADOSEVIC & Edvard KOBAL)
- Chapter 17 Peer Review – From a National and International Perspective (P. RAMBAUT)
- Chapter 18 Interest Representation, Networking and Lobbying for R&D Interests in Brussels (B. CIZELJ)

PART IV. Conclusions

- Chapter 19 Towards S&T Driven Growth in South East Europe: S&T and Innovation Policy Implications (S. RADOSEVIC & E. KOBAL)

Preface

This book is a result of the joint efforts of a majority of the participants in the NATO Advanced Training Course (ATC) "Modernisation of Science Management Approaches in Central and South East Europe" that was held on 28 and 29 November 2003 in Ljubljana, the capital of Slovenia. The event was organised by the Slovenian Science Foundation and was attended by 45 participants from thirteen European countries and the USA. The speakers were from NATO countries (Germany, Greece, Hungary, Great Britain and USA) and Slovenia (which became a member in March 2004). The trainees were from the South East (Albania, Bosnia and Herzegovina, Bulgaria, the Former Yugoslav Republic of Macedonia, Romania, Serbia and Montenegro and Croatia) and Central European countries (Hungary, Slovakia and Slovenia).

The motivation of the NATO ATC was to provide intensive training of public administrators (e.g. state secretaries, state under-secretaries, government counsellors and experts in science and technology policy) working at the ministries responsible for science and technology in South East European countries. Some of these countries, particularly the ones facing political and economic crises, are still not integrated into the international community. Furthermore, their scientific communities have not been able to seize the opportunities offered to them on the international level. This has often been the consequence of the fact that R&D is not supported by efficient science policies. Their social and historical frameworks prevented public administrators from acquiring adequate skills that would enable them to become active participants in the international science and technology community. In addition, many of the South East European (SEE) countries have not been able to develop modern management approaches in science. As a result, national scientific communities often do not have the support and information that they need to become integral and active players in the international arena. Without modern management strategies, these countries will not be able to use all of their intellectual and other resources, which are an essential part of economic development.

The NATO ATC helped public administrators to acquire the knowledge and skills needed to overcome some of the problems facing them in science policy management. The trainees of the course got deeper insight into the skills and knowledge needed for the successful development and constitution of national research programmes, for the development and support of international science and technology co-operation and for science management.

The articles in this book are based on the presentations given by participants of the course. We have also included a few studies (Chapters 1-3) that additionally illuminate the situation in Central and South East Europe (knowledge-based economy and society, elements of national science and technology policy). Moreover, a few special contributions from the Central and South East European participants provide additional information for people who work in science management and strive to internationalise the field of science. As a result, this volume provides a comprehensive overview of S&T policies in SEE countries for the first time and brings these countries into comparative perspective with Central European and other EU countries. In addition, the volume contains analysis of

several important science policy issues (human resource management, management of quality and finance, peer review and networking); in this respect, the volume will be of interest to a wider audience interested in S&T policy-making in general.

Acknowledgements

We would like to give thanks to everyone who assisted us in organising the NATO ATC, as well as to those who helped us prepare this book. The book is a result of the collective effort of a large number of experts in science and technology (innovation) policy, high-ranking representatives of the government ministries responsible for science and technology in Central and South East European countries, and experienced practitioners in science management, among them Maja Bučar, Boris Cizelj, Dimitris Deniozos, Nada Švob-Đokić, József Imre, Miloš Komac, Đuro Kutlača, Zoltán Peredy, Zoran T. Popovski, Janez Slak, Milanka Slavova, Viktor Stefov, Lamija Tanović, Andrea Vass, and Guenter H. Walter.

The NATO dimension of the scientific event (ATC) gave us the opportunity to include experts from the USA, such as Professor Paul Rambaut (University of Hawaii), Dr. Norman P. Neureiter (US Department of State, Washington, D.C.), and Dr. Larry Secrest (Secrest & Co., Austin, Texas) into the preparation and implementation of the ATC.

We would also like to give special thanks to the NATO Science Programme for financially supporting the implementation of the ATC, as well as for providing the grant to publish this book. Sincere thanks also to the Ministry of Education, Science and Sport of the Republic of Slovenia for its financial support, as well as to Dr. Zoran Stančič, State Secretary for Science, Republic of Slovenia, for his understanding and help.

Not least, we would like to express our thanks and gratitude to Darja Čot, Head of International Science Co-operation, Slovenian Science Foundation, for her work during the preparation and implementation of the ATC and this book.

Sincere thanks also to Mojca Zupančič and Barbara Papež, both of the Slovenian Science Foundation, for their assistance.

Edvard Kobal and Slavo Radosevic
Ljubljana and London, September 2004

Introduction

Science and technology have a paramount role in a knowledge-based society. Scientific knowledge is a form of capital and a factor in development. Strategies for its extension as a background for innovation capacities, and strategies for widespread access skills, are mandatory in the transition to a knowledge-based society. Scientific knowledge can be developed to the full only if it is supported by effective and modern science policy.

South East European countries need professional support in the form of training, as well as improving and exchanging the principles of good practice, with the aim of providing them with sufficient skills to participate efficiently in creating and implementing a common scientific policy, particularly in Europe. Providing such training is very important, since most of these countries have not been able to participate in programmes of the European Union Directorate General for Research (DG Research) (applied research and development) or European Science Foundation (basic research). The 6th Framework Programme of the European Union gives so-called “third countries” (where the SEE countries also belong) the opportunity to participate. In addition, the European Science Foundation is also contemplating the possibility of co-operation with institutions from these countries. This gives the ministries responsible for science and technology in South East European countries the opportunity to co-operate in these programmes and to open their scientific communities to the international arena. Furthermore, it gives them the opportunity to establish efficient and well-qualified administrative bodies and to adopt strategies that will follow the (scientific) strategic goals of the European Union or other developed countries in the world. This will also positively influence development of their co-operation in the NATO science programmes.

It is generally known that – compared to the USA and Japan – connections between research and the application of knowledge are relatively weak in Europe despite extensive scientific research work. This so-called “European Paradox” is true for some EU countries and, especially, for South East European countries. The large deficit is evidenced by the small, or practically nil, market success in technologically demanding areas. European awareness regarding this deficit in the area of research and development is reflected in efforts to form and implement efficient technology or innovation policies. The essence of these policies is the need to plan and implement research and development in the framework of close co-operation between business enterprises and universities and research institutes, to disseminate and optimise the results of research and development activity, and to encourage mobility of researchers and their education and training. The essential elements of these policies are quality education and human resources. When implementing these policies, it is necessary to make improvements in organisation and business and in managing human resources and funds for research and development. In addition, co-operation with third countries and international organisations must also be encouraged.

This volume brings a wealth of scholarship on S&T policy, in particular on the countries of South East and Central Europe.

Dr. Edvard Kobal sets the broad scene for S&T policy-making today by first outlining the historical legacy of these economies and how it affects their

transformation into knowledge-based societies (Chapter 1). He then highlights the key policy issues entailed in the transformation to a knowledge-based economy (Chapter 2) and continues by specifically discussing the elements of national S&T policies that are conducive to this transformation (Chapter 3).

The shift toward modern approaches in S&T policy is by no means an easy and trivial exercise. The chapter by Prof. Đuro Kutlača is an excellent case of how the transfer of R&D priorities model faces a variety of difficulties when there is a change of context. In this respect, its conclusions are quite sobering and show the often forgotten, deeply political nature of S&T policy.

Dr. Slavo Radosevic reviews the transformation of research and technology policies in new EU member and candidate states, which are a natural reference point for many South East European countries. He points to the excessively R&D/high-tech oriented nature of their policies, which neglect other elements of innovation capacity that are related to firm-level efforts and productivity improvements. He also points to problems in embracing and integrating FDI into innovation policy. These lessons are of high relevance for SEE countries.

Part 2 represents an overview of the S&T policies of all South East European countries, except Albania, and the Central European countries of Slovenia and Hungary. In itself, this is valuable review as it shows how geographically very close S&T systems have developed to very different degrees. The rich material that is presented clearly points to areas of international cooperation in S&T policy and to great opportunities for trans-national policy learning. We believe that this overview will be of substantial help to international organisations like the European Science Foundation, EU, or World Bank when designing regional programs that address S&T capabilities. In this part, Dr. Guenter Walter summarises regional technology policy issues based on his rich consultancy and research experience in the counties of Central and Eastern Europe. Regional innovation policy has become increasingly important for new member states, and we hope that candidate and other SEE countries will draw valuable lessons from past experiences in this area.

Part 3 focuses in depth on several issues in science management. Croatian and Slovenian experiences in human resource management are quite interesting and are well analysed in the contributions by Dr Nada Švob-Đokić, Dr Miloš Komac and Marjanca Bertoncely. Chapter 16 summarises brainstorming sessions at the NATO ATC, which involved all participants and contain a wealth of know-how for all those involved in issues of finance and quality in R&D. Dr. Paul Rambaut brings a variety of national and international perspectives on peer review; in this respect, it is a highly instructive contribution of great relevance for countries whose peer review systems suffer from endemic failures typical of small and poor R&D systems. Dr. Boris Cizelj analyses highly successful Slovenian experiences in interests representation, networking and lobbying in S&T. As the international dimension of S&T policy has become the most important dimension for new member and candidate countries, his experiences and lessons are highly instructive not only for these countries but also for other SEE countries aspiring to EU membership and increased international integration in S&T.

The concluding chapter draws on the rich material that has been accumulated in the previous chapter and tries to provide analytical and policy synthesis. As such, it is aimed at donor and other international organisations oriented towards the SEE region. Also, we hope that its message will be highly instructive for policy-makers in all of the SEE countries as well as of relevance to scholars in S&T policy in general.

Edvard Kobal and Slavo Radosevic
Ljubljana and London, September 2004