

Fővám tér 8.  
Budapest 5,  
P.O. Box 489.  
H-1828 Hungary

IKU Innovation Research Centre

(Budapest University of Economic Sciences and Public Administration)

# Report for UNESCO on the CIPRE Mentor Seminar



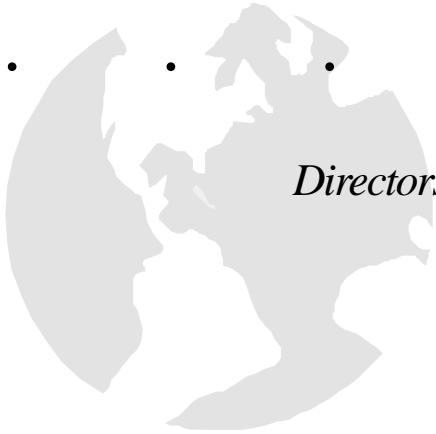
*CIPRE Mentor Seminar  
for STI Policymaker and Administrators  
7-11 November 2001, Budapest, Hungary*

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# CIPRE Mentor Seminar for STI Policymakers and Administrators

*7-11 November 2001, Hotel Gellért  
Budapest, Hungary*



*Directors: Dr. Annamaria Inzelt, IKU/BUESPA  
Dr. Albert H. Teich, AAAS*

CIPRE (Centre for Innovation Policy Research and Education for Central and Eastern Europe) held its first Mentor Seminar for STI Policymakers and Administrators on 7-11 November 2001 in Hotel Gellért, Budapest, Hungary.

In June 2000, with the support of the NATO Program on Science and Technology Policy and Organization, CIPRE held a planning workshop in Budapest to assess the interest of CEE nations in a range of topics under the general heading of science, technology, and innovation policy and to set priorities for its future activities. This workshop was attended by about 30 people, including members of CIPRE's International Advisory Board as well as invited participants representing government agencies, universities, and academies of science in the CEE nations. Participants agreed that CIPRE should give highest priority to cultivating policy leadership through educational programs for early and mid-career professionals, including short courses, summer workshops, and policy fellowships.

In March 2001, CIPRE held a meeting for Central and Eastern European experts to discuss the topics for the series of Training Seminars that was proposed by the CIPRE Advisory Board members on at was also decided to hold seminars for "mentors" who will help the young and mid-career people to learn and use what they will hear at the training seminars. These mentors are high ranking officials from Central and Eastern European countries who will play a continuing role in CIPRE activities. To prepare these people, Mentor Seminars will be held every two years. For the program of this first seminar please see Annex 1.

Participants in the meeting came from many Central and Eastern European countries, some of them with the support of the UNESCO contribution: Albania, Croatia, Estonia, Former Yugoslav Republic of Montenegro, Hungary, Lithuania, Moldova, Poland, Republic of Serbia, Romania and Ukraine. (See Annex 2.)

The lecturers at the seminar were **David Gronbaek** (Danish Research Agency, Denmark) **Dr. Annamaria Inzelt** (IKU Innovation Research Centre, Hungary), **Prof. Norbert Kroo** (Hungarian Academy of Sciences, Hungary), **Prof. Duncan T. Moore** (University of Rochester, U.S.), **Prof. Jose Molero** (Universidad Complutense de Madrid, Spain), **Dr. Albert H. Teich** (American Association for the Advancement of Science, U.S.) and **Andrew W. Wyckoff** from OECD. The lectures provided the

perspectives of American experts (which included an inside view of the Clinton-administration by Prof. Moore), the perspectives of Western-European experts, one from a successful, small Nordic country and one from a Southern-European country and also the perspectives of Hungarian experts. The seminar gave the mentors opportunity to experience different approaches and methods in the S&T field and to find out which parts of these different approaches could be useful for the very inhomogeneous Central and Eastern European countries.

To help the mentors fulfil their roles as well as possible, the Mentor Seminar was designed to support mutual learning and understanding, as well as networking in the region. With these reasons in mind the co-directors of CIPRE, Annamaria Inzelt and Al Teich decided to focus the seminar on two major themes:

- ✓ Technology foresight and R&D indicators as the modern S&T policymaking instruments,
- ✓ Internationalisation of S&T Policy making and participation in EU scientific programs and co-operation.

In the following pages you will find a short descriptions of the lectures organized by major topics.

### *Modern S&T policymaking instruments*

The first lecture on modern S&T policymaking tools was by **A. Wyckoff** on the “*Use of S&T Indicators by Policy Makers*”. The presentation started with quotations from M. Freeman explaining the role and importance of indicators. They are not the ultimate solution for policy makers but without them it is almost impossible to make good decisions in this field. The main points of the lecture were the various types of indicators and the taxonomy of the use of S&T indicators. In this way Wyckoff introduced the role of evaluation, stocktaking, discovery, framing and benchmarking and underlined the most important perspectives regarding the communication of indicators to policy makers. Evaluation provides an indication of meeting the intended objectives. He expressed the need for solid, analysed data with clear intentions. He used some examples of programs for small businesses and some IT indicators to show that no single data set is able to show a complete picture. In

stocktaking, the most important question is that of financing. Stocktaking provides a monitoring for policy as to whether or not you have the desired “portfolio”. There are big national debates arising around the questions of spending on basic research, health, the role of the state and business expenditures.

This initial part of Wyckoff's lecture raised several questions among the participants. The main points of the discussion were the best way to communicate with policy makers, the impacts of the indicators, objective financial criteria and the problem of a minimum set of indicators and their time sensitivity.

Continuing with the taxonomy of use of S&T indicators Wyckoff mentioned the discovery of potential policy issues that need to be explored such as brain drain and circulation. He also expressed the need of frame indicators, which provide an objective, common basis for policy discussions and analysis. At the end of the lecture he spoke about the growing importance of benchmarking which provides comparisons to similar countries, competitors, perceived “best practice” performer(s).

In the closing discussions participants talked about the lead role of Hungary with OECD and S&T indicators, the possible connections to politics, the role of the general methodologies of OECD and UNESCO, and the availability of S&T indicators among Central and Eastern European countries.

**Al Teich** gave the second presentation, entitled “*R&D Budgeting and Priority Setting in the United States*”. He began by explaining the special characteristics of the US budget system and its political context, which are very different from the European systems. He underlined that this system is fragmented (many agencies, programs and special system of grants and contracts), not unified and characterized by the power balance of the two main actors: the President and the Congress.

Questions were raised by the participants regarding a possible simplification of the system, the position of the non-market and market oriented research in the system, and about the financing of the research institutes and the infrastructure.

Regarding the way of priorities are set on the macro-, meso-, and micro-level, he stressed that on certain levels each interest group has the opportunity to express their interest: from the politics on macro-level through the agencies to the research community at the micro-level. The participants also learned some details about the way in which S&T policy is handled in the White House, by different agencies, and

about the key role of the Congress. Mr. Teich ended his presentation with a short summary of the strengths and weaknesses of the U.S. system. Pluralism, he said, prevents big mistakes and allows quick responses if necessary, but the U.S. system is sometimes messy, confusing and inefficient.

In the discussion, that followed, participants talked about the open process of priority setting, the possible interference of politics in research self-control, and the possible role of the business area. The participants were also interested in questions about the budget appropriation process, or the final settlement of the accounts.

The presentation of **Duncan T. Moore**, former White House official in the Clinton-administration took up this point and talked about the U.S. “*Foresight*” model. At the beginning he outlined two possible ways to increase federal support of S&T: (1) to raise the baseline for all fields and (2) by initiatives. He explained the latter case through the example of nanotechnology. For a well-founded initiative the following elements should be considered: (a) fundamental research that provides support for individuals and small groups and promote interagency partnerships, (b) grand challenges for the needed breakthroughs in technology, (c) centres and networks of excellence that will encourage research networking and shared academic users’ facilities, (d) research infrastructure to develop a flexible enabling mechanism so that new discoveries can be rapidly commercialised by the U.S. industry, (e) ethical, legal, societal implications and workforce education and training to promote a new generation of skilled workers in the multidisciplinary perspectives necessary for rapid progress in the given area. Moore showed how the National Nanotechnology Initiative (NNI) has changed the position of this field, keeping in mind the needs of 10 years later ahead. He quoted President Clinton, who said in one of his speeches that “...our research goals may take 20 or more years to achieve, but that is precisely why there is an important role for the federal government.”<sup>1</sup>.

Next, Moore showed data about human resources, and the higher education to explain how the numbers and distribution by fields of graduates is determined for decades. In the U.S. the number of foreign students is growing, while the number of graduates in the fields of physical sciences, engineering and health professions is decreasing. (The highest increase among Americans was in the parks, recreation, and

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<sup>1</sup> President William J. Clinton, January 21, 2000, California Institute of Technology

leisure field.) In many other countries the low number of undergraduate degrees relative to the total population suggests that these countries' economies will be based on low cost labour in the next 40 years. (The best example is China, where this number is only 1,4% of the 24-year olds.)

The questions of the participants concerned the special role of nanotechnology: Should it be accepted as priority everywhere, or why exactly should nanotechnology be chosen? There was much debate about the implementation of the elements of NNI, but no clear answers are there yet.

The closing presentation on modern S&T policy instruments came from **Annamária Inzelt** on "*Policymaking instruments: Indicators in policy deliberations*".

She started her presentation by describing the functions of indicators in policymaking, including informing policymakers in their deliberations, backing up priority-setting and providing knowledge through which S&T policymakers can have an impact on the socio-economic objectives they want to reach. She looked over the actors and their relationships in indicator development and emphasised that better co-operation could help to achieve good indicators (those reflect on past trends and circumstances, contribute to understanding the current environment and guide the development of future policies) more cheaply. The role of indicators may be best observed in the way in which they are used in policy documents. She started with the most commonly used indicator, Gross Domestic Expenditures on Research and Development relative to GDP and by funding sectors. Further she analysed the GBAORD (Government Budget Appropriations or Outlays for R&D) data and the availability of these data. This is very important because the acid test for a government's S&T policy making is its mode of allocation of funds. The structure of the S&T budget and changes in the allocation of the budget by socio-economic objective, by sector and field of science all characterise policy. In the last part of her presentation Inzelt raised several questions concerning the possible role of candidate countries in the process of the establishment of ERA (European Research Area) and some future lessons and topics for discussion. Some of these are the new challenges of the knowledge-based economies, new requirements for indicators and how to upgrade the policy deliberation capabilities.

In the following discussion some of the main points were the more important role of quality versus quantity in indicators, the need to help understand the relationship of input/output indicators, and the need to promote the better use (in context) of indicators by policy makers. Debate centered on the lack of structures and compatibilities in this field and the opportunity to upgrade the political significance of this question. Participants highlighted that sometimes there are too many figures with too little information and that there is only a weak connection between indicators and analysis.

### *Internationalisation of S&T Policy making*

The first speaker was **David Gronbaek** on "*Research co-operation in the EU: Danish experiences on extent, return and participation*". He started discussing Danish experiences in the 4<sup>th</sup> EU Research Framework Program. The main motivations for researchers were participation in co-operation, higher research intensity that resulted in a relatively high number of research activities with Danish participation, but with relatively little Danish co-ordination. Experience showed the most efficient way to find partners is to contact them directly, but this is less useful for finding totally new fields and partners.

Participants mentioned the contrast between the large supported programs, the prospects of the small candidate countries and "pre-co-operation" with these countries as a means of increasing success in these programs. Also important was the question of, how participation changed the national research system: creating new contacts, improving research activities etc.

In the following part of the seminar the participants heard about the essential parts of a successful application, which consists an innovative, convincingly described idea that has a European dimension, and complementary partnerships with a well-established financial background. It is expensive to write an application; therefore it is good if the project has high priority for the management. After the discussion of past experiences Gronbaek turned to the present 5<sup>th</sup>, and to the forthcoming 6<sup>th</sup> Framework Program. He mentioned the still open calls for proposals of the 5<sup>th</sup> Framework program and highlighted the new structure and elements of the 6<sup>th</sup> Framework program. These are the networks of excellence (aiming at world-level excellence,

progressive and lasting integration of research capabilities, common strategic objectives), integrated projects (that result in direct impacts on industrial competitiveness, or contribute to social/global problem-solving with specified time frames and clearly defined objectives). Finally he went through the proposed thematic priorities of this framework program (genomics, IT, nanotechnology, food safety, knowledge society etc.).

These priorities have raised several questions among the participants, as did the possible relevance of Danish participation for the CEE national systems.

**Jose Molero** gave a presentation with the title “*Internationalisation of Research and Technology: Implications for S&T policies*”. Nowadays with the growing internationalisation of economic activities and increasingly faster processes, new challenges are emerging for the national innovation systems. One of the new features is technology creation instead of technology transfer. But the question remains: Should we talk about globalisation or levels of internationalisation of innovation? Molero explained the main categories, actors and forms of the internationalisation of research activities. Data shows the international exploitation of the technology produced on a national basis with inter-firm technology transfer and increasing significance of the absorptive capacities of the countries (level 1). Additional data showed that international and extra-European techno-scientific collaboration has increased (level 2) and Molero mentioned the characteristics of the international generation of innovations (level 3).

After the first part of his presentation, participants' questions concerned the problem of infrastructure-transfer for common projects, and the means of handling internationalisation.

In the second part of his presentation, Molero explained some implications and recommendations for S&T policies in Europe and a framework for their analysis. He touched on the main fields of S&T collaboration and mobility, the attractiveness of the EU, the need for strengthening the absorptive capacities and creating an integrated ‘European Innovation Policy’.

Molero's policy recommendations were very interesting for all participants as this question is on the agenda in all CEE countries. The main prospects are in the utilisation of "brain circulation" and upgrading the absorptive capacities of the

countries through "buy and improve" the new technologies. The participants discussed the problems of mentality and the need to restructure the R&D system to connect the innovations to firms. Close correlations were found with the educational system and with the role of technology centres.

**Norbert Kroó** gave the last presentation with the title "*Revitalisation of the scientific institutes and the research capacities in the universities. National strategies and the role of international co-operation.*" He began by describing the indescribable Europe and the characteristics of science in the 21<sup>st</sup> century. He also expressed the need for global co-operation for a knowledge-based society, and developed information technology. Of the 5 most important engines of the economy, which are capital, raw material, energy, human resources and knowledge, the last two are gaining importance. Without them nobody can reach sustainable development. In Central and Eastern Europe the main task is assuring an appropriate infrastructure for development that can be reached with the support of the 6<sup>th</sup> Framework programme. Kroó underlined the need for long-term thinking in investments, the alignment of military-civil topics, and of politics with reality.

The debate that followed touched on the competition between the North American and European regions, the different characteristics and possibilities of these areas. One important difference of these regions is in mobility - thus, CEE countries and Europe are looking experts toward U.S.

To show the huge extent of recent changes in economy and research, Kroó presented several figures and charts. These concerned Hungary's export potential, which is now directed in 70% to the EU not to the Soviet Union. Other data showed the knowledge base of different countries (number of publications, high-tech export, R&D expenses). He indicated that integration is the most important route to development. Through integration it will be possible to reach a much higher scientific potential than in the present national system. Therefore the CEE nations have to establish real two-way mobility, developed infrastructure, bottom-up processes and consolidated political decisions.

The closing discussion underlined the advantage of the cultural mixture and well-established educational system in the case of Hungary. On the other hand some of the participants warned against the excessive use of these indicators and the risk of

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misjudgement in drawing conclusion based on these data. There was also significant discussion about the possible “R&D atmosphere” at the time of EU enlargement.

### *Conclusions*

On the last day the participants - mentors and organisers - discussed details concerning the future role, responsibilities and tasks of CIPRE, and the mentors.

Because most of the people who are entering these programs are not S&T professionals, most they have never worked in policy-making, and because there are no S&T or policy making courses at colleges, high schools or universities, these courses have an important role. These new, young people need to have a guide, who will show them the way, how to get the new knowledge they need, how to adopt the best mentality and attitude. A mentor need not know the answers to all the questions, but he/she has to be able to show the way to get these answers. They need a helping hand, because they are wavering about a lot of things (for example how to give a speech, etc.). The mentor should help at further seminars as well: increasing the quality, organising, finding good applicants.

The participants had a discussion about preparing a Policy Making Manual (how to solve a problem, etc.). Most of the participants think this would be very useful for this young generation to learn the basic knowledge, but there is still an important question: how to write a general manual for more than 10 countries, where the differences are so big? To finalise the roles of mentors in the near future, they listed the five most important things to do: (1) nominate participants for the next seminar in January, to make it possible to have a good quality selection, (2) help the trainees, contact them personally, directly, and help them to find their role in the program, (3) keep in touch with the organisers, to give them feed-back, to ask them questions, (4) come back together in 2-3 years to discuss the results and responsibilities, (5) suggest topics for future seminars and courses. A key question was: who is the best trainee? Should he/she already be involved in S&T and policy making, should he/she be a decision-maker, etc. The participants agreed on one thing: a trainee should show potential benefits in the future as a result of the present activity. The other intensive discussion was about the products of CIPRE itself. How can it be successful without the involvement of decision-makers? There were several responses

to this question: inviting important decision-makers from the CEE countries to the seminars, arranging meetings in various countries with such persons, etc. It will be difficult, but step by step this goal has to be reached. Finally, there was agreement about the harmonisation of lectures and examples of Western-, Central and Eastern Europe and North America. Of course CEECs must have a look at the Western examples, like the presentations of US, Danish, Spanish, French and other Western lecturers. But we have to try to find the balance between the Western and the Central and Eastern problems and solutions. The main role of the EU is not to provide a money-source, but they are ready to share their ideas with us.

Budapest, 14 December 2001

László Csonka  
Rapporteur

Mandy Fertetics  
Friend of Rapporteur