

RESEARCH-EDUCATION-INDUSTRY IN CENTRAL AND EASTERN EUROPEAN COUNTRIES

SUBREGIONAL ROUND-TABLE CONFERENCE

Budapest, 12-14 October 2000

HUNGARIAN ACADEMY OF SCIENCES

HUNGARIAN NATIONAL COMMISSION for UNESCO

**SCIENCE ANALYSIS AND POLICIES DIVISION
(UNESCO)**

FINAL REPORT AND RECOMMENDATIONS

Background

1. During the last 10-15 years many international meetings have put into their focus the changing relations between research and application. As we are moving towards the knowledge-based economy and society, the life-cycle of the new products is shortening, there is a growing need for (technical, organizational, social) innovations and the developed countries are spending more and more for research and development. Growing expenditures need more justification- research organizations (universities and research laboratories) have to prove their usefulness and should adjust their structures and activities to the demand of the financing sectors whether they are public or private.
2. The process of globalization put small nations' research sector into a delicate situation. In the high-tech sector research expenditures are so high that they may be only covered by the leading transnational corporations or by a few leading nations. A number of developed small European nations have traditionally developed a strong research sector recently losing speed in the harshening global competition. For avoiding a sudden decline in their R&D sector they have to find out how to co-operate with transnational companies, how to build all-European co-operation schemes, how to find specific problem areas where they could insert their research successfully. Research institutions in small countries should convince their governments that the promotion and subsidies of national research, even in those field

where one cannot expect shocking innovations, are absolutely necessary for keeping pace with knowledge-based development.

3. Small countries in Central Europe have special difficulties in defending their R&D sector that was seriously affected by the transformation crisis. This crisis - an unavoidable consequence of the shift from state dominated economy to market economy - has resulted everywhere in a sudden drop of GDP. Hungary and Poland, using radical measures for transforming their state owned economy, came out relatively rapidly from this crisis (after paying a high social cost), in other countries the crisis is still prevailing or even deepening. Collapsing industries closed down their research laboratories and the level of budget subsidies did diminish, too. In 1989 these countries spent appr. 2% of their GDP on R&D, and by now this ratio has dropped to 0,5-0,7%. In the state socialist system the R&D sector was relatively large, but it had serious structural shortcomings.
 - a. The sector was oversized because of the cold war (and the COCOM list). Many institutes 'innovated' such high-tech products that were easily available at Western markets but their exportation was forbidden for communist countries.
 - b. Leading institutes were frequently separated both from universities and industry; they were controlled and financed by different ministries.
 - c. State industrial enterprises were obliged to place order for applied research, but they were not interested in innovations under non-market, non-competitive conditions. Very few product based on local research got into the production.
 - d. In most of the cases universities were considered as teaching institutions only and applied research was not encouraged there.

Summing up: In the communist era Central European countries had an oversized, overstaffed and inefficient R&D sector where universities, research institutes and industry were bureaucratically separated from each other. The quality of the research staff - due to the traditionally high level educational systems in Central Europe - was good.

4. Hungary had the same characteristics and difficulties in its R&D sector. Due to the relative openness of the country in the 70s and 80s, Hungarian scholars have actively participated in the international scientific life; their publication record and their citation index was quite good (chemistry, physics and mathematics were the leading disciplines). That was true for basic research, the number of patents or technical innovations remained low.

The characteristics of Hungarian R&D sector can be summarized as follows:

- a. There was a sharp drop in the financing of R&D. In 1988 2,28% of the GDP was spent on this sector, in 1998 it dropped to 0,7% (the worst year was 1996 with 0,64%). The slow growth has continued and by 1999 it became 0,8-0,9%. Forty percent came from the business sector, 55% from the budget (through different channels) and 5% from foreign resources. The absolute volume of spending is more important than the percentage ratio. In 1995 Hungary spent \$50/inhabitant for R&D whereas the EU average was \$343 in the same year.
- b. The size of research staff diminished by 30% between 1990 and 1998 (the minimum was in 1996). Most of those leaving research went to the business sector, because the research staff is especially poorly paid. According to the estimation of the Central Statistical Office, five to ten percent of the research staff went abroad - temporarily or permanently - to work.
- c. There was an important re-structuring in the universities and the in the R&D sector. The sector's competitiveness has improved.
- d. Transnational corporations have invested heavily in Hungary. These corporations have largely contributed to the rapid economic restructuring and the growing

exportation of Hungary (TNCs assure 70% of the exportation, 30% of the exported goods are high-tech products). Recently, TNCs started to locate research laboratories in Hungary.

5. We intend to present success stories in the Hungarian R&D sector. Successes reached by universities, state owned and Hungarian private institutions and research units of TNCs located in Hungary. We are fully aware that these are but the first promising signs after a decade of decline. The whole R&D sector has still a lot of difficulties and its recovery is still uncertain. I assume, we are in an emerging trajectory. We hope to share our experiences with our neighbours and to learn from their experiences. We should try hard to reach that Central Europe, this old cultural region of Europe, would become a part of the European R&D centre instead of remaining a cheap laboratory periphery.

Organisation

The Conference was organised in Budapest, conjointly by the Hungarian Academy of Sciences and the Hungarian National Commission for UNESCO, with the support of the Division of Policy Analysis of UNESCO, Paris, from 12 to 14 October 2000, in the building of the Hungarian Academy of Sciences.

Statements

The Conference calls the attention of Parliaments, Governments and local authorities to the critical situation that requires urgent and co-ordinated action with a view to preserving and developing research capacities in Central and Eastern European countries and to the fundamental role played by decision makers of education-, science- and industry policy in the present socio-economic transformation.

The lack of an effective policy would heavily endanger the creative resources, the functioning of institutions, and as a consequence, a long term competitiveness of the countries in transition.

The Conference recommends to formulate a forward-looking, comprehensive development policy to pass appropriate laws and measures with a view to develop and implement national R&D policies, harmonised with other sectoral development policies, guaranteeing the best possible conditions for safeguarding capacities, identity and heritage of scientific entities, as well as promoting creativity which constitute indispensable resources for human development of societies in question.

The Conference recognises that in the present situation, the public support for financing research and development will remain dominant in the middle term. While it is necessary to maintain and strengthen the public financing system, appropriate legal dispositions and measures have to be taken with a view to diversify and mobilise the resources from the private sector and the society at large. Investments in the R&D sector should be encouraged, self financing possibilities and capacities should be enhanced.

Equal emphasis is to be given to building **absorption capacities** for best efficiency of R&D investments. In this respect the transition to market economy, the growing complexity of plural financing system and the increasing role of the international business require **new methods and skills of management** at all levels and from all actors of the science arena. Therefore priority should be **Central-European sub-region-specific training** in the field of R&D management.

The financing of research is a key problem of the preservation and development of scientific life in all Central and Eastern European countries. The situations and problems as well as the experience

and approaches are however very diverse. In this situation it is urgent to develop regional co-operation with a view to enable Central and Eastern European countries to **share information, experience** and practice as well as to pool initiatives, efforts and resources, as for example through regular consultations between the responsible R&D policy makers of the region and those of the EU countries. Therefore the Round Table recommends the following actions:

Recommendations

1. **Sub-regional Observatory (a Co-operative Action Programme)**

It is recommended to develop, in close and on-going consultation with the countries concerned, a **sub-regional Observatory on Science and Technology** as a follow-up to the Budapest World Conference of Science **by extensive use of Internet**. The **Sub-regional Observatory should**

- Undertake expert studies, under the aegis of UNESCO and possibly other international and regional organisations such as EU pre-accession funds, which would **analyse and compare the text of laws** in the countries in the region and propose model laws for these countries concerning efficient financing of R&D;
- Organise consultations and sets up a "**best practice**" network with a view to **adapt methods of statistical data collection and analysis** (eventually also methods of qualitative comparative analyses) to the institutional changes of the research structure, public and private R&D funding with special regard to the OECD recommendations;
- Launch a co-operation network of small size scientific communities holding **special professional-cultural assets and heritage** with an aim to promote local initiatives and experiences through developing synergies;
- Establish, in co-operation with research organisations, an R&D desk for the **exchange of recent information on major research achievements in the region** and to provide **advisory services** helping their business application.
- Undertake a project for establishing a **data base** of international **audio-visual, "popular-science" materials on new achievements and technologies** for use of public televisions;
- Strengthen and develop business and administrative **management programmes** and structures for technology research by promoting sub-regional co-operation (management networking, exchange of information, trainees and trainers, network of UNESCO Chairs in Science Management);
- Develop interdisciplinary **training courses for lawyers and civil servants** focusing on the complex interdependence of education, research and industry, copyright and labour law in the information society.

2. **Setting up a structure for R&D "advocacy"**

It is recommended to set up a structure for:

- Organising a R&D lobbying (**advocacy**) activity in view of achieving **more legitimation and extended support for science** by political, civic and intellectual leadership. This campaign should put in evidence, how **modern R&D** benefits the economy, improves the countries' and regions' image, raises the quality of education and attracts investments, finally increasing the quality of life of citizens. The campaign should rely on a coherent communication strategy and structured organisation, and be carried out under the auspices of prominent international and national personalities and instances (e.g. under the aegis of the UNESCO).

3. **Promotion of Corporate Sponsorship**

It is advisable to

- Launch a project on "Development of Partnership in Central and Eastern Europe" with a view to create a framework for discussions among representatives of business firms on collaboration with public institutions and NGO-s, and to **promote corporate co-operation climat** in the region. The academic should include an initial regional meeting (workshop) organised with the intellectual "mediation" of UNESCO and financial assistance from business entities concerned and other organisations (bilateral instances such as the British Council, associations such as AmCham...)
- Launch of a "Pilot Project in **Fund Raising for Scientific Education**" with a view to provide training in fund raising and organisational techniques, through training and 'training of trainers' **for civil servants**, in the framework of a UNESCO project for Central and Eastern European countries. Support could be solicited from European organisations, the UNESCO, IFIs and major foundations as well as from corporate and governmental funds to be mobilised in the participating countries.
- In this context creation of sub-regional network of Science, Technology Management Networks, Similar to (STEPARN, STEMARN).

Special Fund

We should

- Explore the desirability and possibility of launching, under the general label of a **special program by EU Commission in cooperation with UNESCO**, a special fund for the countries of Central and Eastern Europe (not only for "associated countries"!) by co-operation with the 5th and 6th Framework Program of the EU for a six-year period (2001-2007). The fund could support multilateral (multi-country) programs in the region.

Information

We should

- Develop coherent joint national and regional systems of scientific information and data collection, concerning financing, institutions, actors, phenomena and trends, production, consumption, research projects, research needs, practices, as well as data bases on technology information with the aim of joining forces and avoiding duplications.

Follow-up Conference

The National UNESCO Commission of Slovenia is kindly offering its hosting the follow-up meeting of the present Round Table Conference in 2001. The exact date and venue is to be specified later.