



EURAB 02.052 final

ENLARGEMENT AND ERA

European Research Advisory Board - EURAB

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Recommendations

1. National research policies and the ERA

1.1 Development and implementation of national R & D policies

The European Commission should continue to use benchmarking, mapping, innovation scoreboards and other methods to monitor and evaluate national R & D policies in collaboration with R & D policy experts from the Member States and Candidate Countries to implement the best practices and to identify key development areas in the individual Candidate Countries.

1.2 Funding for R & D - the 3 % target

The Commission should insist that the Candidate Countries include R&D and innovation into their national development programmes and increase national spending on R & D and innovation so that a European average level of 3.0% of GDP can be reached by 2010.

1.3 Institutional structures

The Commission should encourage the governments in the Candidate Countries to form advisory and co-ordinating bodies in R&D from competent representatives of relevant actors in society, which would advise the government on the development and co-ordination of national science and technology policy. The Commission should also encourage the governments in the Candidate Countries to establish a research funding system which distributes funds on a competitive basis with the use of international peer review.

1.4 Infrastructures and Resources for Research and Development

The Commission should specifically encourage governments of Candidate Countries to use structural funds attributed to them to build research infrastructures, to strengthen creative innovation environments and to improve co-operation between industry, SMEs and research institutions.

1.5 International co-operation

The Commission should help governments of the Candidate Countries to develop R&D links towards broader and deeper forms of international collaboration between funding agencies, research institutes and industry. Facilities and skills of IT use should be improved to create electronic research networks.

2. Human Resources

2.1 Professional Research Careers and Researcher Training

The Commission should initiate and support a programme of international Ph.D. training with top-level research, for example, with existing centres and networks of excellence, as one form of strengthening the ERA.

Senior scientists in the Candidate Countries should be offered further scientific training by organising temporary (6-12 months) researcher positions in corresponding academic departments, laboratories, research institutions and business companies' R & D departments in current Member States.

2.2 Researcher mobility

The Commission should further develop EU mobility schemes by offering incentives in order to increase researcher mobility from the Member States to the Candidate Countries.

2.3 Research administration and programme management

The Commission and the governments of the Candidate Countries should identify the lack of qualified human resources in research administration and programme management as a priority and allocate funds to their education, training and twinning.

3. Participation and funding instruments in EU Framework Programmes

The Commission should make every effort to ensure that the excellent research centres and all excellent research in the Candidate Countries are better known in the Member States, to facilitate their participation.

The Commission should identify an adequate number of qualified experts from the Candidate Countries who will take part in evaluation of applications submitted, the annual monitoring and the ex-post evaluation of programmes.

In order to be able to take corrective measures (if needed) on the participation of the Candidate Countries in FP 6 the Commission should set up a targeted data and indicators mechanism to enhance the impact of monitoring and an ex-post evaluation system.

4. Collaboration between research and industry

The Commission should, in co-operation with national governments, develop measures to identify and to eliminate obstacles to the use of the CCs research competence by companies, with a special regard to SMEs, operating in the CCs as well as anywhere in Europe. Twinning could be one possibility for effective collaboration between academic and industrial units.

The Commission should encourage national governments to initiate and support science parks and use benchmarking for their international evaluation.

INTRODUCTION

The Candidate Countries (CCs) are engaged in a process of transformation which presents them with the various challenges, benefits, costs and risks of Enlargement. At the same time, they need to adopt research and development as one of their key policies at the national level so as to be able to integrate and fully participate in the European Research Area (ERA) process. Since the negotiations on the chapter on science and research have caused relatively few problems and since research has been a national responsibility and a subsidiary principle, the critical issues in the fields of research and development in the CCs might not receive sufficient attention.

While the integration of the CCs into the ERA raises several common problems, opportunities and challenges, there are differences between individual countries in the socio-economic, historical, cultural, political and other fields that also reflect upon the situation in research. These differences must be recognised and fully understood in order that the processes of Enlargement and the ERA can proceed successfully.

VISION

The ERA is strengthened through the research and development input of the CCs and at the same time it has a positive impact on the CCs' national science and technology system.

The CCs and the current EU Member States are equal partners in the ERA. The ERA, besides its integrating role, also maintains the dynamic and distinctive national features of the research and development (R & D) systems of individual Member States and Candidate Countries.

THEMATIC ISSUES

1. National research policies and the ERA

1.1 Development and implementation of national R & D policies

In an effort to reinforce R & D and interaction between R & D and other sectors of society in CCs, it is important that all actors - politicians, scientists, industrialists, other decision-makers as well as ordinary citizens - are brought together in a process of open dialogue. National R & D strategies should be formulated in view of the strengths, advantages and weaknesses of national actors, regional disparities as well as to European and global development. Strategies should also be integrated into other national policy fields to promote desirable social development.

It is of strategic importance to the EU as well as to the CCs that Enlargement, the establishment of the ERA and their implementation on the national level proceed smoothly and effectively. National R & D strategies should therefore be defined and adopted also in such a way that they are in agreement with ERA aims and form a

solid basis for equal partnership in European research and development, not forgetting common European social and ethical values in scientific and technological issues.

1.2 Funding for R & D - the 3 percent target

In all CCs funding for R & D is below the EU average.¹ Compared with EU members, R & D funding in CCs is generally more heavily dependent on funding from public sources. In many CCs governments have been the main sources of funding, with industry accounting for less than 45 percent of total support.² Therefore the EURAB recommendations on reaching the 3% target fully applies for the CCs.

Although it may be more difficult for the CCs than for the current Member States to reach this target, they need to increase their investment in R&D. It is important to understand that a strong science basis, with support available for both basic and applied research, will benefit society at large, its economy and culture.

1.3 Institutional structures

The CCs have established institutional frameworks for R&D. However, some CCs still lack effective co-ordination between policy-makers and all actors in the field of R & D in the formulation and legislation of R & D policies. There are also major differences between individual countries in their basic R & D organisations, in their structures and functions and in the distribution of private and public funding of research.

National governments should pay more attention to establishing or reinforcing national research and development structures and systems, by improving legal structures (including IPR questions) and by defining the status and responsibilities of different institutions and bodies. It is essential that different national actors in the field of R & D maintain good co-operation; this is also crucial for co-ordination of EU research actions. Good co-operation between different actors will also improve the visibility of research in the CCs and help ascertain the right contacts for collaboration with the Member States and the CCs.

1.4. Infrastructures and Resources for Research and Development

With the launching of the European Research Area, research in Europe will become more collaborative but competition will also intensify. Researchers in the CCs will have to contend with fierce competition for European resources. This new situation will put research infrastructures under great pressure: all CCs will need to make

¹ In 1999, the mean Gross Domestic Expenditure on Research and Technology (GERD) as a proportion of GDP in the European Union was 1.86%, compared to 2.65% in the United States and 2.93% in Japan. Only Sweden (3.8%) and Finland (3.22%) exceeded the 3% level. Among the Candidate Countries, the figure recorded by Slovenia was 1.51% (highest), the Czech Republic 1.25%, Poland 0.75% and by Hungary 0.69%.

² In the European Union, industry accounted for 56% and governments for 34.5% of the Gross Domestic Expenditure on R&D in 1999. However, in the Czech Republic, the Slovak Republic and Romania, for instance, industry accounted for roughly half of the Gross Domestic Expenditure and for 60-70% of actual Research and Development.

investments and improvements in their universities, research institutions and IT innovations. Therefore Structural Funds, which initially concentrated on physical and material infrastructures in less favoured regions, should also be used for R&D.

1.5 International co-operation

International co-operation between the Member States and the CCs has often been based on bilateral agreements. Many CCs are also involved in various European R&D activities and organisations. However, though the CCs have co-operated internationally via participation in the Framework Programme, many researchers in the current Member States are not sufficiently aware of what the CCs can offer in terms of researcher potential and opportunities for collaboration. Indeed, greater effort must still be invested in developing communication and information transfer between researchers and academic institutions in the CCs and the current Member States.

Regardless of the size of the nation concerned or its research input, membership of the European Union will broaden the perspective of national R & D policies and international co-operation. The CCs must be able to evaluate how good a use they can make of the opportunities and instruments for co-operation offered by the EU, and what kind of national responsibilities are called for by participation in EU research and by the realisation of the ERA. In many cases national R & D activities do not provide a solid enough foundation for competing successfully and for attaining the goals set. It has been pointed out that the most difficult challenge for small countries in European research is to strike a balance between national and European needs and resources.⁵

The same bodies that are active in national research policies, namely research funding organisations, should also be instrumental in networking national policies internationally.

2. Human Resources

2.1 Professional Research Careers and Researcher Training

The CCs have mostly substantial human resources and a generation of senior scientists with thorough training. However, external and internal brain drain represents a serious threat in these countries,⁶ some of which are losing not only established scholars but also younger researchers to other countries, often to the United States. Also, young people now show only small interest in taking up research careers, particularly in the natural and technical sciences. The main reasons for the shortage of qualified staff and the brain drain in research are non-

⁴Cordis Focus number 192, 11 March 2002, 6

⁵All European Academies ALLEA Working Group report Research Strategies for Smaller Countries 2002

⁶In 1999 the total number of R&D personnel per one thousand labour force in OECD countries averaged 10.2. Finland had the highest figure at 19.6, with Japan recording 13.6, Poland 3.7, the Czech republic 4.6, Hungary 5.2 and the Slovak Republic 5.8.

competitive research infrastructures, inadequate pay, poor career prospects and a lack of societal recognition.

R & D in an enlarged ERA and in individual new Member States will require stronger human resources. National research career strategies should be formulated with the aim of establishing a flexible and visible system of researcher positions of different stages at universities and other research institutions. EURAB recommendations on the role of universities apply also to the CCs³.

It is vital that graduate schools aim at high scientific standards in all their activities. They should be integrated or associated with excellent research centres and their networks. Graduate schools should also network with graduate schools in the present EU Member States to help to strengthen contacts between researchers.

2.2 Researcher mobility

Several Commission actions have already increased international contacts and improved access to high-quality infrastructures, centres of excellence and other institutions. Mobility should be supported so that brain drain could be replaced by brain circulation: there should be mobility in and from all directions, internationally as well as intersectorally, and especially between academia and industry. Mobility grants with return incentives should be promoted, national infrastructures should be strengthened and researcher careers should be made more attractive by proper pay incentives, networking and improved access to research and information technology facilities. Researchers from current Member States should be encouraged to seek and secure contacts with researchers from the CCs. Funding organisations in the current Member States should make targeted funding available to their researchers for collaboration and mobility in the CCs.

2.3. Research administration and programme management

Considerable efforts have been made to strengthen institutional R & D frameworks in the CCs and their communication with the European Commission. The National Contact Points (NCP) have helped the CCs to improve the flow and accessibility of information between the Commission, national research and funding organisations and promoted the participation of researchers in EU research programmes. In an effort to further improve their knowledge and contacts, NCPs in the CCs need to have more training and opportunities to exchange experiences with the whole network of NCPs in Europe.

In research administration and programme management of the CCs there still seems to be a lack of qualified people. Although the CCs have applied and received funding for the sector of education, training and research, they have not paid sufficient attention to improve their research management.

3. Participation and funding instruments in EU Framework Programmes

³ EURAB Advice 2001-2002, 7-9

From the point of view of CCs, it is important that they should take full advantage of the Framework Programme 6 from the very outset. However, there are concerns that the CCs may have difficulties in networks of excellence and especially in integrated projects. Many CCs have suggested that a smooth transition could be achieved through Specific Targeted Research or Innovation Projects and other activities, such as Coordination Actions, which would facilitate adaptation into the new Framework Programme and the use of new instruments.

As far as networks of excellence are concerned, some CCs have established Centres of Excellence or corresponding programmes and schemes that may help them compete for funding for Networks of Excellence in the Framework Programme 6. They will also promote the regional aspect of research in the CCs.

The risk that the use of the new instruments may reduce the participation of institutes in the CCs must be taken seriously: governments in the CCs might allocate a large part of research funds to FP participation and leave only little to national research. National research should thus be strengthened and national governments and research funding bodies must recognise that funding from the FP will not cover the majority of R & D activities and will not replace national R & D investment which must be increased and balanced.

4. Collaboration between research and industry

One of the key questions in implementing the ERA and strengthening the position of the CCs in the ERA process is how to get industry interested in research and how to get researchers and young researchers in particular interested in industry and business. One of the potential problems in CCs may be that business companies and universities are not exchanging views on development needs and research interests. Their strategies and approaches to economic issues may also be different. Another issue is the lack of researchers, which is mainly due to the external and internal brain drain. And still another issue is that the contribution of the private sector to R&D is even lower in average than in the Member States. This requires focused efforts in terms of knowledge transfer mechanisms and therefore in collaboration between research institutions and industry.

So that industry could develop and increase its share in R & D, it needs to have qualified researchers and more co-operation with universities and research institutes: this is crucial for improving the innovation system and for translating research into applications. One of the ways to improve and intensify the collaboration between academia and business is through insourcing, in which a company makes arrangements with a university or another research institution that give company people access to a university research environment. SMEs in the CCs should also actively seek participation in Specific Research Projects for SMEs and in Specific Support Actions in the FP6. To support the positive trends in the industrial sector, strong and growing fields of industry should be identified and science parks and similar environments established where researchers and companies can collaborate. There is still a lack of venture capital, seed money and funds to support new enterprises and to help them invest in research. Likewise, fiscal and financial environments should be improved.