PART IV

National Science and Innovation Policies in South Eastern Europe: Current Policy Challenges

Addresses by Ministers and High Level Representatives responsible for S&T

HIGH LEVEL ROUND TABLE, LJUBLJANA

29 SEPTEMBER 2006

Bosnia and Herzegovina

Communication from the Ministry of Civil Affairs of Bosnia and Herzegovina delivered by Ammar Mirascija

Mr Chairman, Excellencies, Ladies and Gentlemen,

Please allow me first to thank you for giving me this opportunity to address you on behalf of Ministry of Civil Affairs of Bosnia and Herzegovina. Allow me also to extend our gratitude to our hosts as they have provided us with the unique chance to discuss a number of important issues and plan future steps.

I would also like to extend to you highest regards and best wishes from the Minister of Civil Affairs of Bosnia and Herzegovina, Dr Safet Halilovic, who was unfortunately not able to attend this important gathering.

As is known to most of you, Bosnia and Herzegovina, due to a very complicated and unique constitutional design, has some very specific issues to resolve prior to its transition and final accommodation to EU standards. I will take some time to explain the context in which the Bosnian science and technology (S&T) sector has been reviving in the post war period.

Bosnia and Herzegovina as a state is composed of two entities, the Republic of Srpska and Federation of Bosnia and Herzegovina, and Brčko District. The Republic of Srpska is highly centralized, while the Federation of Bosnia and Herzegovina consists of ten cantons and is therefore a very de-centralized entity. Each canton has its own parliament and government, so basically there are 14 governments within the country.

There is no Ministry of Education and Science at State level, but each entity and most of the cantons have their own ministries, which deal with these issues, and have their own independent policies towards this sector.

The Ministry of Civil Affairs of Bosnia and Herzegovina, through its Department for Education, Science, Culture and Sports, has the primary role in coordinating those policies within the country, but its recommendations and decisions are not binding, as it has no power to impose decisions, and no funding is envisaged for the S&T sector in the State budget. At the international level, the Ministry has a mandate to take over the international obligations, but without any instruments or mandate to pursue their implementation.

The EU membership ambitions of the country and the overall political consensus over this goal, have enabled a number of reforms, and transfers of authority and competence from entity or lower levels to State level. Since the S&T sector is not recognized either by the government or by the European Commission as the key partner in the Accession Process, this area remains untouched by the reform processes and therefore still subject to future constitutional change.

If political consensus on the necessary constitutional changes is obtained after the October elections, there is a good probability that Bosnia and Herzegovina will get a single Ministry of Science and Technology. Before that, however, major disagreements over the competences and the role of this future ministry will have to resolved. A number of political factors support the idea of a full transfer of responsibilities in this area to the new ministry, but there are also strong political powers which oppose this idea, and are insisting on a rather vague coordinating role for this ministry.

The same disagreements and dilemmas surround the debate on the State Law on Science, as its first version is being drafted.

In order to achieve full compliance with EU standards in this area, it is clear that Bosnia and Herzegovina, along with its State level authorities needs to take over full responsibilities for the area. Translated into practice, this requires that the newly established ministry should start working in its full capacity in order to provide a genuine revival of the S&T sector, primarily through reconstruction of the scientific infrastructure and revitalization and the development of the human resources.

In spite of all existing obstacles, and with very limited resources, the Ministry of Civil Affairs of Bosnia and Herzegovina, has managed to incorporate the S&T sector, as a separate item, within the Mid-Term Development Strategy of Bosnia and Herzegovina, as a precondition of overall social development.

The Ministry of Civil Affairs has also managed to include S&T as one of the national priorities for future IPA funding.

The re-establishment of the research, technology and development (RT&D) system in Bosnia and Herzegovina presumes the creation of a National Strategy, backed up, fully supported and implemented by the State.

In this regard, we welcome the recommendations of the very good and accurate UNESCO-ROSTE *Report Guidelines for a Science and Research Policy in Bosnia and Herzegovina* which, among other things states that rebuilding the scientific and technological potential of Bosnia and Herzegovina will require the adoption of a 'road map' with three general mid-term objectives:

1. training of a new generation of scientists in Bosnia and Herzegovinan universities or abroad;

2. development of research infrastructures (experimental equipment, computers, information networks and libraries) to international standard; and

3. reinvestment in industrial research in a limited number of sectors (as a priority, in those sectors that export a large fraction of their production).

The UNESCO-BRESCE Report also supports the idea of establishing a State Research and Development Ministry, creating a State Agency for Science and Research, setting up an inter-ministerial Committee for S&T activities as well as the Advisory S&T Committee, and establishing a State Fund for research and development in Bosnia and Herzegovina .

The follow-up to this Report was the Strategy Proposal by the Academy of Arts and Sciences of Bosnia and Herzegovina entitled 'Strategy for the S&T Development of Bosnia and Herzegovina', which will be presented soon.

The Report also states that the Bosnia and Herzegovina scientific community should be able to join the European research area (ERA) and to be more involved in international scientific cooperation. Further it recommends the following: that the Bosnia and Herzegovina scientific community be strongly involved in regional and European cooperation in research projects, funded by the European RTD Framework Programmes; for the duration of the 7th Framework Programme, the EU should devote funds through an ad hoc international programme for the Western Balkan Countries (WBC); Bosnia and Herzegovina should participate in the COST and EUREKA programmes.

Having said all this, we particularly welcome the Initiative launched under the Austrian EU Presidency and the European Commission, the Steering Platform on Research in WBC. This initiative is linked with the vibrant and productive SEE.ERA-NET Project in which Bosnia and Herzegovina is already participating.

I thank you very much for your attention.

Bulgaria

Albena Voutsova, Director, Scientific Research Directorate,
Bulgarian Ministry of Education and Science

Ladies and Gentlemen,

1. The main features of the Funding system in Bulgaria are the following:

The Bulgarian R&D funding system embraces a mix of various instruments: institutional, programme/project-based funding; international and other sources. There is sill a tendency for imbalanced funding, i.e. - higher share of institutional funding compared to competition-based funding. However in the last years a positive trend can be observed in terms of increasing the programme-based share of allocated funds for science and research activities. The weaknesses of our system are the following:

- compared to other EU countries in terms of research and development (R&D) investment, Bulgaria is lagging behind the EU-average with about 0.5% of GDP spent on science and research. But, according to official statistics we are ranked near to some Member States such as Greece; Slovakia and Poland and previously Latvia and Cyprus;
- relatively feeble increase in the partnerships between academic research and industry which reflects on the insufficient development of a national innovation system (NIS);
- the share of institutional funding is three times higher than other sources – too many permanent staff consuming institutional funds and virtual absence of temporary research staff;
- co-existence of various research funding mechanisms which increases the possibility of duplication of scarce funds;
- absence of thorough benchmarking and international evaluation with realistic feedback to policy-makers and fund-providers, which consequently hampers efficient decision-making processes.

Among our major achievements, the following can be cited:

- increased funding with more than 6% of the programme/project-based funding for the last two years;
- better project culture - this influences the attraction of other funding sources;
- improvement in the flexibility of the resources mix;
- better internationalization of science through better and more effective participation in EU framework programmes and other Union and supra EU R&D initiatives;
- opening of new temporary research positions for young researchers through funded projects and programmes;
- more financial and prestige stimuli for research teams through the targeted programmes and projects (awards)

2. The restructuring of the S&T system is necessary for the following reasons:

- the system is too fragmented and not robust;
- cannot be changed easily without a top-down approach;
- very sensitive to the status quo – possible negative reaction from society.

Some lessons learnt:

- immediate necessity for implementation of new financial schemes;
- give new opportunities through new programmes and initiatives;
- increase intra and international cooperation;
- create friendly oriented milieu for formation of dynamic bodies.

Some achievements:

- recognition and support for new centres of competence - more than 23 in total;
- more R&D alliance on programme base;
- establishment of new partnerships between universities and small and medium sized enterprises (SME) and/or universities and academic institutions aiming at forming a stable knowledge triangle: education - research - innovation.

3. S&T policies: Weaknesses:

- insufficiency of good inter-institutional coordination;
- insufficiency of critical success factors aimed at acceleration of economic growth and at introducing further steps for timely development of new market niches (e.g. information and communication technologies (ICT), new and renewable energy sources, such as bio-fuels);
- insufficient coherence of policies and strong implementation of open method of coordination (OMC) which results in neglect of new and emerging research domains and reflects negatively on national competitiveness and comparative advantages;
- favouring national champions can create conditions that hamper achievement of full added value.

Next steps:

- cope with compartmentalization as a consequence of the segmented approach introduced (for instance elaboration of 'win-win' bottom up strategy in order to enlarge the revenues from collaboration);
- support for more qualitative research;
- discourage ' blue-skies' research;
- develop better brain gain schemes (including the national science diaspora) and better balanced research mobility;
- effective use and access to the research infrastructure - in and out;
- visible and appealing research profile.

4. Knowledge-based Economy

The Barcelona targets were set long ago but few of us are close to achieving them. Bulgarian case:

- lagging behind the European Member States;
- demand for R&D results is still insufficient;
- excellent knowledge which does not always lead to excellent innovation rate and fast market realization.

Latest achievements :

- new national schemes and programmes aiming at high-quality research;
- preparatory grants – mutual learning experiences;
- adoption of 3% annual plan – more investments in research;
- launching targeted programmes for research infrastructure in priority areas;
- new schemes for early stage researchers and post doctoral students.

5. Conclusions:

- trust in quality and competence;
- trust in young skilled generation;
- improve effectiveness and efficiency and gathering more real results;
- increase accountability;
- keep it simple!

Former Yugoslav Republic of Macedonia

Sulejman Rushiti, Minister of Education and Science

Distinguished Colleagues, Excellencies,

Let me express my gratitude on behalf of the Government of the Republic of Macedonia to the organizer of this event, which enables us to cooperate and exchange experience in scientific research and technology development. I use this opportunity to announce that the new government will have a new approach to education in general and will be focused on research and development and science in particular

Since our programme is aimed at improving the economy, and strengthening it, we are conscious and convinced that upgrading the economy means upgrading education and upgrading our capabilities of science.

Our goal is to encourage cooperation between business and schools and cooperation between industry and science.

We have new challenges. We have started to work on the implementation of our programme, which in the field of education means new curricula, upgrading the knowledge level and improving the statistics.

We are conscious that we will need a lot of support from our friends, from experienced countries and organizations who have provided valuable help to our country through the implementation of projects: COST, Framework Programme 6, NATO, UNESCO, IAEA, JICA, TEMPUS, CEPUS, and Education Modernization, etc. all of which we are thankful for.

Our aim is to intensify the ongoing programmes designed to increase the dynamics of the reforms, and start to implement new phases that will bring us closer to European integration.

Since it is my first attendance at such a meeting let me once again express my gratitude and my pleasure at the opportunity to meet my distinguished colleagues and gain from the huge experience that exists in this meeting.

I want to finish with the words: 'we are willing to cooperate'.

Thank you.

Greece

Christos Vasilakos, Representative, Ministry of Development

Ladies and Gentlemen,

On behalf of the Greek Minister of Development, Mr. D. Sioufas, I would like to thank you for organizing of this conference and the High Level Round Table, where the Ministers and representatives have the opportunity to address important issues in regard to the Science in South Eastern Europe (SEE).

Greece has a strong interest in research in the SEE, especially participating in many of the International Cooperation Actions in the context of the 6th Framework Programme.

I would like to address some visions concerning the EU-SEE countries' cooperation in the field of research and technology.

Firstly, the traditionally very diversified Balkan region was until recently divided into areas of strong competing external political influence. The integration of the more prosperous countries of Europe has generated for the people of the Balkan region the hope of a shared future in peace and sustainable growth. The European Union (EU) should not leave this region isolated in the struggle to overcome internal contradictions and to survive in an increasingly competitive international context.

In Europe, the transition from an industrial era to the knowledge economy coincided with the transition of the planned economies of Eastern Europe to market economies. This left the countries of the Balkan region in very dissimilar situations. For example, Greece has been a full member of the EU for more than 20 years, with increasing rates of growth. Bulgaria and Romania are working to achieve the accession requirements and Turkey, the pre-conditions requirements. The five States of Albania, Bosnia and Herzegovina, Croatia, Serbia and Montenegro and F.Y.R.O.M. are in the process of coming out of the political and ecomomic instability experienced because of previous crisis situations.

Europe has a strong interest in contributing to the welfare of the people and the economies of the region to overcome these difficulties. This is in order to increase the living standards, to extend the capabilities of the internal market and to enhance the competetiveness of Europe in the international scene, compared to its main competitors. Such interest needs to be transformed into actions and measures approved by all involved parties. The resulting cooperation should be based on mutual understanding and in the perspective of full participation of the SEE region in the European Research and Innovation Area (ERIA) and therefore the European RT&D activities and networks, as soon as possible.

In this respect, science, innovation, research and technological development are seen to be an essential tool for future economic stabilisation and growth in the region. The European Commission is promoting EU S&T co-operation with the five countries of the Western Balkans as well as with the candidate countries, with the key objective to contribute to their political and economic stabilization.

The recent political and economic crises in the countries of the region have affected their RTD capacities dramatically. The main reasons for this effect include: the sudden change from almost exclusively state directed economies and research capacities to market economies; the exceptional reduction in national expenditures on RT&D; the loss of critical mass due to the formation of new states; and the simultaneously important brain drain.

It is now necessary to undertake coherent actions for the reinforcement of the RT&D and innovation capacity in each country and in the region as a whole.

To this end, the importance of RT&D for economic growth and the resolution of problems in each country should be put forward at the highest political level of all countries in order to facilitate the necessary initiatives and mobilization of funds.

The Greek political agenda includes, inter alia, priorities to stimulate research and innovation activites in the SEE countries. The Greek proposals for the final Communique are the following:

- The implementation of a SEE Charter for S&T, which may be adopted in the next Forum.
- To promote mechanisms for strengthening SEE cooperation and networking among innovation policy makers.
- To ensure or to improve access to information, technology transfer and networks and to the pan–European research infrastructures.
- To strengthen the potential and capabilities for full participation in ERA, the 7th Framework Programme, CIP and the other European programmes (e.g. EUREKA) seeking in particular the increased participation of the business sector, mainly small and medium sized firms.
- To support the establishment of and/or upgrade electronic networks for science, research and education and their link to the European gigabit network GÉANT.
- To stimulate the mobility of scientists and researchers as a means of sustainable research cooperation within the region and with other aspects of the ERA, including the activities of the JRC.

It is now time to act, the 7th Framework Programme will give you many opportunities to achieve your goals.

Thank you.

Montenegro

Slobodanka Koprivica, Deputy Minister,
Ministry of Education and Science

On behalf of the Ministry of Education and Science of Montenegro I would like to express gratitude to the organizers of this Conference who invited the representatives of Montenegro to take part.

As part of our overall economic reforms, we are at the beginning of the education and research reform system. Certainly, the reform process in Montenegro is faced with numerous problems and obstacles, characteristic of a country in transition.

The funds allocated for science and research are still insufficient to carry out the reconstruction of scientific-research activities, which implies provision of laboratory equipment, possibility to carry out competitive projects, initiation of a mobility process.

What is also very important to stress is that the research community in Montenegro is small and that it is of vital importance to preserve it and keep it open to the Region and the EU, because it is the only way for the research community to stay alive and become involved in the creation of a knowledge-based society.

I have to stress that our major problem is to retain our most competent researchers. We are doing our best to prevent brain-drain, but I am afraid that it is going beyond our control.

With the aim to reconstruct the system of research, technology and development (RT&D) the new Law on Scientific Research activities was adopted last year.

In accordance with this Law, the Government has already established the national Council for Science and Technology (S&T). The Council consists of representatives of Government and of the research community, including the Minister of EU Integrations, the Minister of Education and Science and the Minister of Finance. This body is in charge of writing a proposal for S&T strategy for the next eight year period. This strategy should determine S&T priorities, which will be financed from the Government's budget, define annual budgetary increases, as a percentage of GDP, allocated to S&T for a prescribed period, and implement monitoring of the strategy. The proposal should be opened for public discussion and the final text submitted to Government for adoption.

We should in reality establish a national policy for achieving short- and medium-term goals, taking into consideration our decision to become part of the European integration and the obligations that arise from this decision, as well as inclusion in the ERA.

We in the Ministry believe that without such a document, it will be very difficult for us to decide precisely what is needed, and follow the process in this area.

It is encouraging that in the last two years the number of bilateral projects has increased considerably. The area of bilateral cooperation is of great interest to Montenegro. Bilateral and multilateral RT&D cooperation will give Montenegro the possibility to create links with the internal RT&D market, and enable much greater participation in European research endeavours, thus enhancing research perspectives in bilateral and multilateral activities. The RT&D strategy in Montenegro is oriented towards improving research capacities by reinforcing S&T potential, supporting and mobilizing human and material resources, disseminating scientific information and research results, facilitating communication and improving the responses to the socio-economic needs of the country.

Increased networking through bilateral and multilateral cooperation would enable exchange of personnel and results, carrying out of joint experiments, hosting scientists from abroad for teaching, training and other research activities, the possibilities to diffuse and to exploit research results, and the hiring of new young researches to reinforce human potential.

The Ministry's plan for the next year is very ambitious. This means that in the next year the financial allocations for this area could reach 0.4% of GDP for this year.

I think that negotiations with the Ministry of Finance will be complex and difficult, but taking into consideration the whole situation, I think that awareness of the importance of investing in the knowledge sector is increasing among ministries, as is pressure from the public, and especially from the scientific research community.

It is my opinion that the time for development of our society has arrived, and that the government and the public have embarked on intense discussions about the development of a society based on knowledge, and that knowledge should be one of the key resources in Montenegro.

I spoke before about our responsibilities for further development in this area in Montenegro, and how and to what extent we can accomplish them by ourselves. Of course, I think that international programme support should provide a contribution, but I do not believe that it will be possible to support Montenegro if we do not establish goals in our national policy for S&T and disseminate the results achieved through our own efforts.

Thank you for your time!

Montenegro

Milena Savovic, Ministry of Finance

Ladies and Gentlemen,

In Montenegro, we are coming to the end of a three year stand by arrangement with the International Monetary Fund (IMF). This arrangement included some specific fiscal adaptations, such as reducing the budget deficit year on year, for 1% of GDP until Montenegro can manage to achieve a balanced budget. During the period of the arrangement with the IMF, the government was not allowed to undertake more than $32 million of loans from commercial trade per year. The necessity for creating a current fiscal environment resulted in a request to government for tax reductions; this puts the obligation on government to reduce expenditure. Also if the investment needed to improve the poor water supply, electricity, infrastructures, etc. are taken into account it is not difficult to see the scale of the challenge facing the Ministry of Finance.

In terms of the current situation in education and science, in 2006 we allocated more than 70.7% of the total budget expenditure of the Ministry of Science, which is responsible for distributing this money to the final consumers. However, most of this amount goes to salaries, administration, taxes and various contributions to current expenditure on material services; very little is left for research and development (R&D). The Ministry of Finance recognizes the huge importance of investing in science and research and with the help of reforms to the huge administrations to make them smaller and more efficient and flexible, we will create better conditions, and will be able to increase salaries for training staff and improving the climate for investments in science and research.

This is the policy that we hope to implement in the next period, which I, and indeed all of us hope, will bring a continuous increase in the allocations for R&D.

Romania

Alexandru Aldea, Vice-President, National Authority for Scientific Research, Ministry of Education and Research

Mr Chairman, Ladies and Gentlemen,

During these two days of discussions I have come to realize that we share not only a geography and history, but also the same problems and difficulties in developing the research and development (R&D) system.

The difference perhaps is that in our countries the public was and maybe still is not prepared to understand that R&D is essential for long term economic and social development; which in the stringent economic conditions that prevail at the moment, is understandable.

I also realize that, for us , as policy makers and administrators of science, it is important to be aware of general trends and global aspects, and also to be aware of the concrete problems of the scientific community, to know what real life looks like.

In Romania, we made an important step forward in that the R&D budget for 2006 doubled compared to 2005; although the absolute figures may not be very impressive, this increased budget stirred things up at all levels. We had to think how to spend the money in responsible and clever ways, to move from rhetoric to action, and to identify the real problems and be pragmatic.

The major aim is to increase the visibility of the R&D sector, keeping in mind that, in this period of globalization, visibility means international visibility. To this end we have mobilized all the relevant forces, public and private, in order to achieve the critical mass necessary to obtain visible results. In other words, we are trying to build up a Romanian Research Area as a component of the European Research Area (ERA).

The tool we have devised is a special research programme called the 'Programme of Excellence in Research' which is a competitive scheme; the projects were submitted in English, the topics were based on those in Framework Programme 7 and the evaluation was done electronically. There have been some immediate consequences in the form of higher salaries (making research an attractive profession), the acquisition of medium-expensive equipment, and future mobility of researchers. At the same time some young Romanian researchers working abroad have expressed a wish to return to Romania.

Another very important aspect is the evaluation and ranking of the research institutions. The principle we apply for ranking is to measure output versus input of the research activity and, together with the scientific community, we have identified a limited number of indicators. A pilot exercise has been performed and we are ready to launch the ranking operation on the scale of the whole system.

There are of course some weak points. First I have to say that the contribution of the business sector to research and innovation is still very low. This is a special topic of discussion, and often in discussing this aspect we put the cart before the horse. We have to remember that innovation should be demand based. Of course, here the finance ministry may play an important role through fiscal measures.

Another concern is related to human resources since the level of the research depends on the quality of the people; one cannot fill the technological gap without filling the educational one. In the period of transition, many young gifted people moved into domains other than the scientific one. For this and other reasons the quality of education in the scientific fields decreased and recovery is an absolute urgency.

In terms of the problem of strengthening cooperation in the region, I think that this can be achieved via two channels. On the one hand, it is our duty to identify the instruments (such as SEE-ERA.NET) and to improve their functioning. On the other hand, different research teams should get to know each other, establish contacts and identify mutual interests. I am distributing some CDs with the topics, abstracts and teams of 500 research projects running under the Romanian Programme of Excellence in Research.

I very much appreciate the initiative and efforts of the UNESCO Office in Venice in organizing this meeting which is important for clarifying our future lines of action for the enhancement of R&D capacities.

Thank you.

Slovenia

Jure Zupan, Minister of Higher Education, Science and Technology

Ladies and Gentlemen, Excellencies,

I know quite a lot about the problems of this region, and would really like to do more to resolve them. I am sure our ministries will do all that can be done to strengthen the ties between the countries in this area.

I see this as an opportunity to discuss the problems that we all have and examine the solutions proposed. I hope that solutions can be found to all the problems that we are faced with.

I would like to begin with what we have done in Slovenia and go on to talk about how we can jointly solve some of the problems that are arising in all of our countries.

In December 2005 we launched the so called five year 'national research and development programme'. There are four aspects of this plan that in my opinion are most important and will probably influence the politics of science and technology in the whole region.

The first point, which, from our point of view is the most important one, is the European research and higher education area. In Europe, we talk about European Research Area and the Higher Education Area, but we know that research and education are one area. Thus, we have prepared and have decided to unify in one law, both these activities of research and higher education. It is expected that in the coming months this law will be discussed by students and universities before it is finalized and takes on administrative power. We strongly believe that universities must do research and that researches must teach if the knowledge is to be disseminated and improved.

The second point which we would emphasize is related to the so called 'research and innovation programme'; research and teaching must reach out and be applicable to industry, and to the economy, to encourage innovation Therefore, we have given to all our research institutions the possibility to open higher education courses, and they are now developing the first Bologna programme which is being offered at universities.

The third goal which is well known is 3% of GDP invested in research. Because we are looking at higher education and research as one objective, in this five year plan we have set the objective of 5% of GDP for research, development and education, divided across the public and private sectors. The public sector should receive 2.3% (1% for research, 1.3% for higher education) and the private sector should receive 2.7% (2% of GDP for research, 0.7% for higher education). This is the general goal that we want to pursue in the next 5 years.

The fourth point which is particularly relevant for this meeting is related to cooperation ties, in which we include not only the multilateral ties at European level, but also bilateral ties which are very significant because first, among our researchers and higher education professors, we know that personal ties between institutions and countries are very important. In the SEE countries, there is a large potential in education, in research capacity, research personal, which should be maintained and advanced.

I would like to briefly outline Slovenia's contribution in this context. First of all, we are building national contact points, which is very important. We are offering six month fellowships for post graduates in our universities. This is organized via AD Cultura and the Slovenian Science Foundation.

Many Slovenian institutions and universities have Marie Curie host status which means that they can offer fellowships of six months to one year or even longer for graduate and postgraduate students. This is a scheme that is in the current Framework Programme and has been part of previous programmes and is open to students and professors who would like to spend some time working in a Slovenian university. We are looking for highly educated people undertaking postgraduate and undergraduate studies for six months or one year.

In the last 10 years, Slovenia has been involved in 800 bilateral projects. We would like to shift these bilateral projects to a higher level, and include greater mobility for researchers, involving travel to the countries in the region and exchanges for periods of a week. We would like to allocate more money to this to enable real projects to be undertaken, especially in cooperation with industry, which may mean participation of one research or education institute and one industry firm for instance. Collaboration could include three entities but should include at least one university and one firm. We already have such agreements with Israel and Norway, and would like to extend this activity to include other countries.

The information service system, COBISS, is operating in Bosnia, Croatia, Serbia, Montenegro and Macedonia, and is maintaining all the scientific publications in our system enabling them to be easily evaluated. It is also connected with website presentations.

Furthermore, there are the ERA WESTERNBALKAN countries projects and finally there is the issue of a 'referee list'. We are in the process of compiling a list of referees from different countries for exchanges. We have referee agreements with Croatia, Austria, Germany, and we will also include some people from the USA because we believe that refereeing should be done at the international level. This kind of exchange would be welcome for any of the countries to participate.

Finally, I would like to thank Mr. Erdelen and I urge all of those interested in cooperation to increase the possibilities for it.

Slovenia

Mateja Vranicar, Ministry of Finance

Ladies and Gentlemen,

I would like to point out another aspect of funding. Today we have spoken merely about the direct public funding of research and development (R&D), but so called 'indirect funding' by government is also very important. By 'indirect funding' I am referring especially to benefits that are available to the R&D sector through the different instruments of national tax systems. I am involved in tax and customs policy in the Ministry of Finance in Slovenia, and I would like to give you an example of some good indirect funding that is in place in the Slovenian tax system. I want to highlight a particular example of the tax incentives that are included in Slovenia's corporate income tax, although there are other examples of tax incentives for R&D in other areas of the Slovenian tax system. Under the present corporate income tax law in Slovenia, there are two special tax incentives that are intended specially for investment in R&D.

The first is an incentive for the employment of researchers. These are the workers with PhD degrees and the incentive is offered to companies - to employers who employ these kinds of workers, but only as long as the employee has not previously worked in the economic sector. The incentive amounts to a 30% deduction from the taxable base for the first 12 months of employment of such an employee.

The second and more important tax incentive is a special tax incentive for investment in R&D by companies that would be liable for payment of corporate income tax. This incentive was introduced in the 2005 tax law and was applied for the first time in 2006. Although there are no available empirical data, I want to explain how this new incentive operates. It has two components, a general component that applies to *all tax payers*, who are allowed to deduct 20% of their investment in R&D from their taxable base; eligible costs that can be deducted are the following: the amount invested in internal R&D activities; purchase of R&D equipment; and R&D services provided by external providers. If the companies are situated in areas of Slovenia with low income per capita, then an additional 10% or 20% deduction may be allowable, but this part of the scheme has not become operational yet because it is classified as State aid, it thus was not taken into consideration by the European Commission yet; work still needs be done in this area.

The importance of this latter incentive is shown by the fact that in the proposals for corporate income tax for 2007, this is one of the few tax incentives that was retained. Most other major incentives in the corporate income tax system have been abolished due to the fact that the government wants to simplify the tax system and to make it more transparent, and more neutral, in terms of the economic decisions required of the actors in the economy. However, government decided to retain this special incentive for investment in R&D in the tax system, demonstrating government's recognition of the importance of this kind of investment for the development of Slovenia.

Turkey

Nüket Yetiş, Acting President of TÜBİTAK

Mr. Chairman and Distinguished Guests and delegates of the Conference,

I just want to start my presentation by rephrasing the theme of this Conference. 'If we don't invest in science in our region, what would happen?' Already we are investing in science in the other regions of the globe; that's why we are losing our regional competitiveness, as well as the quality of life. Does it really make a difference to invest in R&D? The answer is yes. The one who invests more in R&D and has more scientists gets the first rank; they are much more competitive.

I would like to summarize our National Science, Technology and Innovation Initiative. The mission of that initiative is to coordinate all partners and actors of the system, to work together to increase quality of life in the Turkey, to find solutions to our problems, to increase the competitiveness of the nation as well as to enhance scientific literacy within society.

We have three basic strategic objectives: The first one is to increase GERD, Gross Expenditures on R&D, to increase the demand for R&D and innovation and also to increase the number and the quality of R&D personnel. We have very clear and robust targets: We would like to have 2% by the end of year 2010. And also, we would like to increase the number of full time equivalent researchers to 40,000. And we have established performance indicators just to check if we are really doing well for these targets.

How much Turkey is spending for R&D? For the year 2004, it is about 1.6 billion Euro. And about 20% of that comes from direct public funding. It is not the total funding but it directly goes to the projects of science, technology and innovation. And after this initiative had been launched, our direct funding to research and development and innovation increased considerably.

Of course, we had the challenge and we still have the challenge of increasing demand for science, technology and innovation. We are trying to use two instruments: The first one is to support scientific, technological and innovative activities of the industry, the private sector. And their funds also increased since the start of this initiative. And also we have just established about a year ago a new programme, what we call it as "Public Institutions Research Programme". What does it mean? We ask performers; universities, industry and public R&D institutions to come together with interdisciplinary teams and to find for their activities a customer that is one of the public institutions either from a public agency or ministry. They will cooperate with their customer and create a kind of project proposal with the customer. Then they should apply to TÜBITAK after the panel discussions and evaluations, we fund about 100% of it. After they get the money, they make the research and innovation and then submit the results to the customers either as prototype or service systems.

The other challenge was the capacity: human resources, infrastructure, national and international relations and also scientific literacy within the country. The number of researchers is a problem throughout the globe. We also have the same problem in Turkey. That's why we increased our fellowship programmes and it has almost tripled or quadrupled. We support academic curiosity-based research in universities and since we have changed the whole system, international standards and the peer evaluation systems, the trust in the system has increased and the number of proposals coming from the universities increased more than four times. And we opened those programmes not just only for the universities, but also for the industry and the public institutions. And now we have an accumulated projects coming from academia which is about 3,300.

We have lots of bilateral agreements and we have multilateral relations. And fortunately Turkey is a member and also the founder of those multilateral agreements and multilateral associations. We are in association with the EU Framework Programmes as well. In the region, we have already about 55 bilateral projects and 60 projects for FP6 of our national coordination office. We have very good relations with the countries in the region.

Just to show you the potential of Turkey: Number of scientific articles is increasing exponentially, we are ranked globally at the 19th rank and increasing. But we don't have such a big success for the patents. Unfortunately, local patent applications and number of patents are very low at the moment. That's why we have a brand new programme for promoting patent applications in Turkey.

What can we do together? We can use bilateral relations, we have some international fellowship programmes. For the researchers who would like to come to Turkey, we can provide scholarships up to a year or more. And also we can send researchers to your institutions and universities. We have an important role to play together in FP7, COST, EUREKA and the other programmes as well. We would arrange, organize together some workshops, scientific meetings, etc.

I want to invite all delegates of your country to the October Seminar which is a kind of FP7 Training Seminar on how to prepare and manage FP7 projects. The ones who would like to come or send somebody to those programmes, we put all the information for you. We are also going to have another programme during the December of this year. It is a joint activity with Bulgaria, Romania and Turkey. Again with the participants from the countries you have seen. We are going to pay two experts coming from those countries if they would like to come to Turkey. And we have another occasion, it is a brokerage event, it is in the beginning of the year 2007. If you would like to join that activity please just contact us.

What we have achieved at the moment? We have a strategic approach, we have our strategic plan, and action plan, we have greater financial resources that's why I would like to thank our Ministry of Finance for that resources. And we have established international standards and norms that the OECD and most of the countries are using. We have created new programmes and enhanced previous ones. We have many mechanisms for every type of activity at the moment. We have restructured the evaluation and selection systems including international

panel systems. We have performance monitoring and assessment systems for post-project or post-programme activities. We have enhanced the administrative and legal infrastructure. Believe me, it is much more difficult to have a flexible administrative and legal environment in our country but again I would like to thank all of the ministers and the government that they have done a lot. But we still have challenges. We have increased and we are going to continue to increase national and international collaboration.

That's all I would like to say at the moment. Thank you.

Intervention by Janez Potočnik[103]

European Commissioner for Science and Research

Ladies and Gentlemen,

I am very pleased that I have the opportunity to be here with you for the closing session of this Conference.

At first sight, this would seem to be a very easy speech to make. After all, I am in my own city talking about my own portfolio, research. And this conference touches on how research can help economic development, another area I have a great interest in.

But this is actually a difficult speech, for several reasons. The first is that I am the last speaker, so you may have heard it all before! The second is that I feel some difficult decisions need to be made if this region is to develop as it can.

You have heard the arguments over the past two days. There are many different angles, but only one bottom line: Europe needs to invest more in research and better exploit its research potential.

This is a message that has agreement in all corners of Europe.

In the EU, we have made the analyses which prove this point. We have reached a broad political consensus. Though we have been looking at the current EU, this message holds true for wider Europe.

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Why does Europe need research?

Put simply,

- we can no longer live off the back of natural resources: we do not have enough and many are not sustainable
- our competitive efforts need to take into account the environmental needs and the sustainable development strategy,
- and competing on the basis of cheap labour and low social security is neither desirable nor realistic in the globalised economy.

[103] The text is reproduced as accessible at: http://europa.eu/rapid/pressReleasesAction.do?reference= SPEECH/06/551&format=HTML&aged=1&language=EN&guiLanguage=en (accessed 10 August 2007).

Our quality of life depends on knowledge. Modern economies are no longer exclusively based on manufacturing; the services economy plays an important role. These services are valuable because they show knowledge generating income.

The EU took action at European level at the Lisbon Summit in 2000. You may have already heard what was decided there - to make Europe's economy the most competitive knowledge-based one in the world.

But throughout the last six years, research has played a continuous role. Whether stimulating the economy, improving the environment or securing the quality of life, research has been on the political agenda.

At EU level, we have now something we can call an integrated research policy. This identifies actions not only in research, but many related areas. Research is most successful not in isolation, but linked to areas such as education, industry, finances and public procurement. When these all work together, we get closer to achieving our overall objectives.

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And this is where it gets difficult. South Eastern European countries have to follow the same path as the EU has.

This means:

- getting together with all the stakeholders
- designing an integrated research policy and
- setting national targets on how much public funding will go to research; and how to increase human resources capacities.

Public investment in research in the South Eastern European countries is still very low, compared to the EU average of 1.9%. This is why you need to start drawing up a plan to progressively increase the public contribution to research.

This will require some skilful work by Ministers of science, research and education. They have a central role to play. They will need to demonstrate to their Prime Ministers and Ministers of Finance that more research funding is a good investment. Even though the benefits might sometimes be long term.

It's not just the level of funding that is important. It is also how it is spent.

Here I can offer some suggestions on how to make the most of the funds you have:

- National science budgets need to focus on excellence. This is the best preparation for cooperating with EU research partners.
- Governments need to encourage collaboration and networking with the EU. They could do this by helping their institutes to improve their infrastructure and human capacity.

- Update national equipment and laboratories. But don't duplicate facilities. Research infrastructures are expensive. So consider regional research centres, by pooling the region's resources.
- Avoid fragmentation in funding. Don't provide funds just for the sake of it – have clear justifications for each euro. For example, don't feel obliged to maintain an institute which no longer provides any benefits.
- Introduce a fair level of competition into research national funding. Show transparency. Include international experts in the evaluation. Funding should not only be fair, but should be seen to be fair.
- Set priorities in the thematic areas: play to your strengths and strategic interests. Create niche markets.

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South Eastern European countries have a strong scientific base. Please don't lose it by failing to investing in research.

There are already good examples in the region.

Croatia's research policy was examined as part of the accession negotiations. It was considered sufficiently developed to facilitate integration into the European Research Area.

When the Former Yugoslav Republic of Macedonia requested EU candidate country status, the Commission's opinion highlighted that the country lacked a vision for development of a research policy. FYROM's Government's response was to immediately start working on a National Programme for research and development for 2006-2010.

Not only was the decision quickly taken - it also addressed the right issues. These include:

- better coordination among the different ministries involved in research and technology
- considering more public spending on research and
- strengthening links between research and industry.

It goes without saying that these plans then need to be implemented!

This process is ultimately all about integration. Your integration into the EU is fundamental. That is not just my opinion. European leaders at the European Council in June said *the future of the Western Balkan Countries lies in the European Union.*

Research policy is an important tool to facilitate this integration.

This is one of the reasons why I am committed to make the conditions very attractive for South Eastern European countries to be associated to the next Framework Programme, FP7. I am thinking particularly of the financial contribution required.

I said this when the Steering Platform for Western Balkan Countries was launched in June in Vienna. And I am pleased that since then, some of you have taken up my offer!

Integration requires cooperation. FP7 is the perfect vehicle for this. Cooperation can take place beyond national borders, and regardless of historical and political obstacles.

Cooperation in research needs longer lead times. FP7 has taken this into account, running for a longer, seven year period.

Collaborating in the programme will lead to cooperation with researchers and scientists from all over Europe and the world. Not only will you obtain more knowledge transfer, but also increased market access opportunities.

Research can lead to innovation, which leads to jobs and growth.

FP7 will be taking a lead in this. It will support major public-private partnerships in key technology areas. "European Technology Platforms" are designing strategic R&D agendas in these areas. The Technology Platforms are industry-led groups where all major stakeholders are represented. Their R&D agendas look to the long-term European development of key technologies, based on real business needs.

In the interest of your industry, you should actively consider participating in some of the Technology Platforms.

But to make the most of these new opportunities, action is again needed from the region's national Governments. The right conditions, which stimulate investment in research and innovation, need to be in place.

As you may know, we have a target of seeing 3% of the EU's GDP dedicated to research. What you may not know is that 2% of this needs to come from private sector.

It is clear that we cannot force private businesses to invest in research. There is no stick, but we can use carrots: we can make the conditions favourable for research investment.

For example, Governments could:

- take fiscal measures allowing deductions of a substantial part of the investment
- or permit a tax credit
- Or they could exempt employed scientists from social taxes.

Some may say 'Our first concern is not research, it is developing the economy.' But to neglect one for the other would be a mistake. Because one leads to the other.

Again, this is an area where public authorities can play an important role. Here are a few suggestions of areas where they could be proactive: They could:

- put research and innovation high on their own political agendas, so that investors see a favourable climate for innovation

- stimulate SMEs, the backbone of our economies, to innovate; for example by providing training for sectoral SME associations on how to include research in their daily business decision-making
- favour technology driven products and services through public procurement
- give preference, when attracting foreign investment, to innovative companies who are ready to transfer technology
- or provide training to make managers more entrepreneurial, including knowledge on research, patents and licensing products

When I refer to investment in research by private sector, I do not mean only in traditional sectors, such as pharmaceuticals, the automotive industry or manufacturing. Countries with a more service oriented economy should promote research efforts in areas relevant for them.

For example, Montenegro or Albania, who depend a lot on tourism, could encourage research in the leisure sector. This way they can be in a position to offer, for example, well equipped, safe and modern leisure facilities to their tourists.

In your pre-accession phase to the EU, I cannot underline enough the importance of industry investing in research. This requires determination and partnership.

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This brings me to my final point: how to encourage industry-university research and partnerships?

There needs to be a place where the two can interact. So **creating science parks** is a good first step.

This is particularly relevant for the South Eastern European countries. There is a lot of excellent research with high standing physicians and engineers at the region's universities. For example, when I visited the Institute of Physics in Belgrade, I was impressed with the research campus and I saw room for spin-offs. And other cities, for example Priština and Sarajevo, are known for their excellent universities.

But in this region, as well as in the EU, we need to see the **modernisation of universities**. This would lead to better interaction between education, research and innovation.

Research and innovation are really all about people. So Governments need to **make scientists' career perspectives more attractive**. A good salary is one element. But so is the ability to move easily from private to public institutions without losing social benefits, such as pensions. And to have good research facilities

Talking of mobility, I am aware of the visa problems encountered by the countries in this region. Although this issue lies with the individual EU Member States, I do remind them at every Competitiveness Council how important it is to transpose the short term visas for scientists' package. The Commission is in the meantime looking at a global visa solution for your countries.

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Ladies and gentlemen,

Research has given us previously unimaginable advances. We can communicate across continents, break down the human body to a gene code and create the smallest ever instruments.

But I would like to tell you today what I consider to be the two most basic elements in advancing research. They are a table and some chairs. I may be simplifying but I am sure you will agree that the first step is to get the people together. Only so can research start moving forward.

There is no magic solution to development. But in this region you do, at least, have the benefit of learning from the experiences – and mistakes – Europe has made so far.

One of those mistakes was not having invested enough in the last decades in knowledge – be it in research, innovation or education. We are still paying for that today.

So I urge you all to take the tough decisions needed to play your part in building and nurturing knowledge in your own countries. It is the best way to make this region attractive to investors, customers and its people.

In doing so, you will help your integration into the European Research Area and the European Union.

As you can imagine, I would especially love to see research play a lead role in helping develop this region. And the EU is ready to support wherever we can.

You have the tools at your disposal. Now is the time to act.

Thank you.

High Level Round Table

Science and Innovation Policy in South Eastern Europe and in Slovenia
29 September 2006, Ljubljana, Slovenia

FINAL COMMUNIQUE

Ministers and representatives responsible for science and for finance from South Eastern European countries and Slovenia met in Ljubljana, Slovenia, on 29 September 2006, at the invitation of UNESCO (Venice Office), the Slovenian Ministry of Higher Education, Science and Technology, and of the Austrian Science and Research Office in Ljubljana.

The High-Level Round Table was preceded by an International Conference 'Why Invest in Science in South Eastern Europe?' in which theoretical issues and practical approaches regarding science and innovation management at international, regional and national levels were presented and discussed by distinguished experts, representatives of European and international institutions, as well as the private sector.

The participating Ministers and representatives acknowledged that:

1. Knowledge creation and diffusion are increasingly important for the enhancement of innovation, sustainable economic development, and social well-being; and increased investment in science, research and quality education is essential for achieving the Millennium Development Goals adopted by the UN Millennium Summit in 2000.

2. Based on their well educated workforce, rich traditions in the promotion of science and technology, South Eastern European (SEE) countries possess the fundamental assets needed for building the process towards knowledge societies and for reaching regional sustainable development by placing science and technology (S&T) at the forefront of national and regional development policies.

3. Countries within the SEE region are at very different stages of development concerning the state of their economy, technology, and research and development (R&D), in particular with a view to reaching EU standards.

4. Although considerable improvement of R&D systems has been made in the last decade by some of the SEE countries, modernisation of science and innovation systems is still needed in others.

5. By its very nature, science transcends political borders and geography, acting as a catalyst for sharing intellectual endeavours among national communities; enhanced regional cooperation (in particular in scientific fields of common interest and the sharing of major research infrastructure) is therefore an important means for the reinforcement of both S&T capacities and cooperation among SEE countries.

The participants recognized that, in order to create sustainable development and social welfare within South Eastern Europe, specific measures are necessary at national level with a view to:

- continuing or initiating overdue development and enhancement of S&T policy and innovation systems by: a) improving the overall status of S&T in governmental policy priorities; b) creating the legislative and institutional framework to foster R&D with a particular emphasis on industrial demand for and business expenditures on R&D; c) fostering the modernization of R&D infrastructure;
- further supporting quality education, in particular higher education, and the development of universities as important nodes of emerging knowledge-based economies;
- continuing to foster research collaboration, scientific cooperation and technology development within and outside the SEE region;
- supporting further development of human resources also by attracting more women and youth and taking appropriate measures to reduce brain drain from science and research;
- raising awareness and public understanding of science;
- making extensive use of existing and new platforms for dialogue among decision-makers and society at large.

The participating Ministers and representatives called upon international organisations, in particular UNESCO and sister Organisations, funding agencies, as well as European institutions to:

6. support SEE countries in the development and the implementation of quality science, technology and innovation policies;

7. contribute to the training of decision-makers in STI policies, including foresight techniques to set priorities for funding and crafting of policies and to disseminate best practices in STI policy and management;

8. support actions to put STI at the top of the national/regional development agenda;

9. support SEE governments in improving the performance of administrative, legislative and financial infrastructure of STI systems, including the improvement of the access to information technology and networks, and to the pan-European Research Infrastructures.

10. support SEE governments in increasing intellectual property assets development and management, technology transfer, public-private partnerships to promote science-based innovation, and in the creation of science/technology parks;

11. create incentive programmes, supportive of fundamental, long-term research to ensure that universities and public laboratories can continue to explore knowledge frontiers on a broader front and remain reliable sources of objective scientific expertise;

12. promote greater regional and international cooperation in S&T as essential means to meet global challenges such as economic growth, social cohesion, improved health, sustainable development, enhanced safety and security, and to promote peace and dialogue in the region;

13. help to strengthen the potential and capabilities for full participation in ERA, FP7, CIP and the other European programmes (e.g. Eureka), seeking in particular increased participation of the business sector, mainly SMEs.

14. support the exchange of researchers, academics and students, overcoming visa problems, and encouraging mobility schemes between Western Balkan countries and the European Union Member States;

15. consider the idea of a permanent global Forum of Ministers of, or those responsible for, Science and Technology to be held on a regular basis under the auspices of UNESCO.

General Conclusions

Slavo Radosevic, Rapporteur

The main aims of the International Conference 'Why Invest in Science in South Eastern Europe?' were:

- to contribute to a better understanding of the interrelation between investments in science and knowledge and socio-economic development in general, specifically with regard to the present situation in South Eastern European (SEE) countries;

- to provide a knowledge base for policy-makers to improve the allocation of funds for investments in science and research and to identify accompanying measures which would lead to enhanced socio-economic development in the SEE countries as well as in other parts of the world.

In both these respects, the Conference was successful. High level experts in S&T and innovation policy presented the state of the art in comprehension of the role of S&T in socioeconomic development, and the role of S&T in the SEE region. This provided an excellent platform enabling evaluation of current and future initiatives in the SEE region. The Round Table of Ministers further contributed to a better understanding of S&T policy in the region, particularly in relation to schemes for funding S&T, and served as a very good platform for motivating and improving decision-making over the funding of S&T in the region.

The main conclusions of the Conference are set out below.

1. An increasing role of knowledge in economic development and globalization of S&T provides a broader context and generates pressures for SEE countries to enhance the role of their S&T systems in their countries' socio-economic development.

2. Current economic features pose severe constraints on the development of S&T in the region. We can hope that with the continuation of the current levels of recovery and growth these constraints will be significantly reduced and will make room for strong policy actions. Weak innovation demand and support systems are the biggest bottlenecks to a stronger contribution from S&T to growth and social development in the SEE countries. Constraints on the demand side are being further reinforced by constraints on the supply side through continuous and strong processes of external and internal brain drain and ageing in the R&D sectors of SEE.

3. A key challenge for all SEE countries is to abandon R&D confined within the framework of science and innovation policy and expand the policy focus to include other elements of national innovation capacity, such as absorption capacity, diffusion, and transfer and demand for RTDI. The abilities of individual countries to follow such a prescription differ greatly. The differences between countries in these respects are substantial.

4. Differences in the levels of S&T across the region should be perceived as an opportunity rather than an obstacle. They will enable the establishment of joint RTD projects among partners with different S&T profiles and different capacities.

5. Based on experience in the developed countries, such as Canada, a gradual boosting of targeted public investment in knowledge creation (competitive grants for centres of excellence) should be a priority.

6. 21st century universities are developing in the direction of entrepreneurial universities which nurture expanded links with large firms and local SME networks. Their restructuring is based heavily on the Triple Helix model. However, the emergence of this model in the SEE region is constrained not only by weak universities, but also by weak firms and very weak local demand for local RTDI. The third pillar – government – is engaged in establishing innovation governance and often in restructuring a fourth actor, R&D institutes.

7. SEE universities have so far been unable to respond to these new challenges. The capacity to grow local spin-offs is quite complex, especially in the small and semi-developed research systems of the SEE countries which are faced with numerous missing factors. Partnerships among universities and R&D institutes, via consortia, may be a specific SEE response to the need to enhance research and innovation capabilities.

8. An important partner that could contribute to the restructuring of universities is firms, both local and foreign. Top blue chip companies in the region are aware that they will not be able to sustain the inflow of new people unless they support local universities. In this respect, projects such as the joint Hewlett Packard-UNESCO initiative to alleviate the brain drain in SEE are examples that should be replicated on a much larger scale.

9. In general, cases of good practice across the world suggest that the localization of R&D investments is strongly dependent on public–private partnerships and on good infrastructure including transportation.

10. Although open conflict is now relegated to the past in the SEE region, there is still scope for Science for Peace initiatives. The success elsewhere of such projects developed by UNESCO suggests that it is mainly due to a package of elements involving the coming together of various stakeholders.

11. Examples of good practice show that the effective introduction of new tools to advance research and innovation requires the involvement of finance ministries and the ministers of finance.

12. Analysis of S&T and innovation polices in the new EU Member States and candidate States suggest that benchmarking and continuous monitoring and evaluation are essential in the development of research and innovation policy capacity. There is need for national as well as regional initiatives in this respect.

13. Lack of real long-term commitment to S&T and instability in the organizational sets ups of governments hinder the adoption of normative measures towards increasing the role of R&D in economic development.

14. A review of the changes in individual SEE countries shows very large differences in levels of development and pace of restructuring of RTDI systems. The R&D systems in Bosnia and Herzegovina, Albania and to an extent Former Yugoslav Republic of Macedonia are the most disadvantaged. These countries are still trying to establish functioning R&D systems and primarily addressing science policy. Reforms in other countries range from still very initial and limited changes, as in the cases of Serbia and of Montenegro, to very much EU driven and inspired changes in other countries (Romania, Croatia, Bulgaria). In these three countries and Turkey there has been a visible attempt to shift the focus from conventional science policy to innovation policy.

15. There has been limited progress on key issues for the integration of the Western Balkan countries into the European Research Area (ERA). The international stakeholders are aware of the need to support S&T in the SEE region for integration into the ERA and as a tool for economic growth. The infrastructure requires major improvements and the S&T systems need to be restructured. Key factors that have contributed to the current unsatisfactory state of the Western Balkans are internal conditions and limited and inadequate sources of external funding, e.g. EU FP6, InterReg, NATO and in particular lack of support from CARDS. It is essential that the RTD component within CARDS activities is increased.

16. International assistance in enhancing S&T in the region is still very limited. Most donors do not have a single home for RTDI. Many actors work across different networks in a rather uncoordinated way. This creates segmentation and duplication. There is an absence of overall purpose and strategic direction.

17. Individual national initiatives, such as the Turkish 2005 National S&T Initiative, have introduced a new momentum. If this initiative is successful it could become an example of good practice for other countries in the region.

18. The Conference demonstrated that there is now a much better understanding of the region's RTD needs. These are primarily related to infrastructure, human potential, institution building, joint research and funding.

19. The Conference showed that there is large scope for individual country initiatives at bilateral levels. Slovenian initiatives, which include six month fellowships, bilateral projects, information services and joint referee systems, could be used as examples of good practice.

20. The Conference participants agreed that although the benefits might be quite long term, an increase in R&D funding is essential if the SEE countries, and the Western Balkans in particular, are to be prevented from falling further behind in economic development. How-

ever, these funding increases should be accompanied by a strong focus on excellent but also relevant research. This will necessitate fair competition, priorities, transparency and international experts.

21. The Ljubljana Conference seems to have been an important milestone in the development of international cooperation in this area in the region. The Final Communiqué provides a clear agenda for further action.

ANNEX I

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Since March 2001, Walter Erdelen has been Assistant Director-General for Natural Sciences at UNESCO. In this function he oversees UNESCO's programmes in basic science and engineering sciences, earth sciences, ecological sciences, water sciences, and science policies for sustainable development on behalf of its 192 Member States.

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