

3 February 2006

# Screening report

# Croatia

## Chapter 25 – Science and Research

**Date of screening meetings:**

Explanatory meeting: 20 October 2005

Bilateral meeting: 15 November 2005

## I. CHAPTER CONTENT

The *acquis* in Chapter 25 – Science and Research – as laid down in Title XVIII of the Treaty requires the Member States to ensure the necessary implementing capacities to pursue the Community objectives and activities in the field of research and technological development, including adequate staffing. The Member States also need to adhere to and to implement specific Science and Research objectives and activities as developed by the open method of coordination. The *acquis* in this Chapter does not require transposition of EU rules into the national legal order.

The most important actions which the Candidate Countries have to implement are: (1) the Sixth Framework Programme (FP6) of the European Community for research, technological development and demonstration activities for the creation of the European Research Area and for innovation (2002-2006), the specific programmes and the rules for the participation of undertakings, research centres and universities and for the dissemination of research results, for the implementation of the FP6 and participation therein and (2) the EURATOM Sixth Framework Programme for nuclear research and training activities and contributing to the creation of the European Research Area (2002 - 2006) and the specific programme and the rules for the participation in the EURATOM Research Programme. As part of the research actions funded by the European Community, the Joint Research Centre (JRC) organises direct actions through its seven specialised institutions.

In March 2000, the Lisbon European Council set the objective for the EU to become the most competitive and dynamic knowledge-based economy in the world by 2010. Since then, a number of important Communications and Action Plans were adopted with the aim of designing and implementing an integrated research policy in support of economic development and creating European excellence and knowledge. In 2000, the Commission adopted the Communication ‘Towards a European Research Area’ covering a wide range of areas. Other relevant communications are the Recommendation on the European Charter for Researchers and on a Code of Conduct for the Recruitment of Researchers (Mobility Action Plan), the Action Plan Science and Society, the Commission Communication ‘Investing in research: an action plan for Europe’ (based on the decision of the Barcelona European Council in 2002 to raise the overall investment in research and development to 3% of GDP by 2010) and the Commission Communication ‘More research and innovation: a common approach’ (based on the renewed Lisbon Strategy).

With respect to both EC Research and EURATOM/Nuclear Research, candidate countries will have to adhere to the bilateral and multilateral agreements the European Community has concluded on respectively science and technology and nuclear research upon accession.

The FP6 programme committees assisting the Commission in implementing the FP6 specific programmes, the Scientific and Technical Research Committee (CREST) as well as the Standing Committee for Agricultural Research are the key bodies in this area.

Finally, a number of ad hoc decisions concerning research in specific areas need to be addressed, such as the European Research Fund for Coal and Steel and the creation of an Article 169 undertaking.

## II. COUNTRY ALIGNMENT AND IMPLEMENTATION CAPACITY

This part summarises the information provided by Croatia and the discussion at the screening meeting.

Croatia indicated that it can accept the *acquis* regarding Science and Research. Croatia indicated that it does not expect any difficulties to implement the *acquis* by accession.

### II.a. Research Policy

The main body responsible for developing research policy in Croatia is the Ministry of Science, Education and Sports (MSES), whereas the National Council for Science (NCS) acts as an expert advisory body. The National Foundation for Science, Higher Education and Technological Development (NFS) is an independent institution formed by the Parliament (in 2001) which operates autonomously and also develops financial and policy instruments. Croatia implements several instruments, programmes and policies (including their evaluation) with the aim of developing a substantial and strategic research policy, such as the very recently adopted 'Science and Technology Policy Document' (which sets out strategic aims in the short as well as in the long run, establishes a new financial instrument, defines new rules and procedures for individual research grants and establishes research programmes) and NFS's Strategic Plan 2004-2008.

As far as the public funding of research projects is concerned, the MSES and the NFS are the two responsible bodies. Specific criteria and procedures for research projects to be funded by the MSES, which is by far the largest funding body, are recommended by the NCS and decided by the Minister. In 2005 a total sum of HRK 126.4 million (approximately EUR 17 million) for funding of these research projects is provided by the State Budget (as in previous years). However, research grants are low, with direct costs below EUR 10,000 on average (salaries and instrumentation costs not included), and there is a lack of competitiveness and of a proper peer review system, with 85% of proposals being funded. This weakness is recognised by Croatia and they aim to address it by reforming the MSES funding instruments and rendering the function of NSF more operational.

### II.b. Framework Programmes

#### EC Framework Programme

Croatia already participated on a limited scale in the 5<sup>th</sup> Framework Programme (FP5) as a third country on a project basis and will be an associated member of 6<sup>th</sup> Framework Programme (FP6) effective from 1 January 2006 (a related Memorandum of Understanding was signed in November 2005) allowing for full participation in the FP6.

As far as the national coordination system is concerned, FP6 is supported by currently 4 national contact points and a supporting structure, consisting of an expert network of 146 EU coordinators from higher education institutes and research institutes, information points and a dissemination network. An FP6 Office has already been set up and staff have been trained as part of an FP5 Project. Croatia carries out numerous actions for a successful participation in FP6, such as disseminating information on FP6 via videoconferences (with eight cities) and via workshops at universities and research institutes, holding training events in international project management, involvement in the SEE-ERA-NET project, designing a special website and publishing booklets.

Regarding the activities of the Joint Research Centre (direct actions), some information cooperation, e.g. seminars and trainings, has taken place in the last two years involving

some hundreds of Croatian experts on scientific and technical aspects of EU legislation. Moreover, the Joint Research Centre is promoting short-to-medium term stays of Croatian researchers and experts at its institutes to gain better insight into its activities.

#### EURATOM Framework Programme

Croatia has carried out several projects with the International Atomic Energy Agency (IAEA) and it encourages research efforts in the field of nuclear safety (in particular radiation protection and risk research). Croatia has not requested to be associated to the EURATOM part under FP6 for the remaining period. It announced that for the planned 7<sup>th</sup> Framework Programme it is considering its association to the EURATOM part.

### **II.c. European Research Area**

#### European Research Fund for Coal and Steel

Croatia presently has no domestic coal production. Coal for the two shoreline located power plants is imported. As a consequence, current research in fields connected to the Research Fund for Coal and Steel (RFCS) is related only to carbon capture and storage. This research is concentrated at the University of Zagreb. Possibilities for Croatian participation in the RFCS are illustrated by some current FP6 projects (e.g. EU GeoCapacity) and by some foreseen (7th Framework Programme (FP7) initiatives (e.g. ETP Sustainable Mineral Resources).

Steel production in Croatia has decreased in the last decade, although consumption of steel amounts to around 1 Mt/yr (50% is used in shipyards). Therefore Croatia sees a necessity to continue also the steel related research (currently also concentrated at the University of Zagreb). Future possibilities for research are especially seen within the FP7 initiative of ETP Ultra Low Carbon Steel Production.

#### Agricultural Research

There are 18 national registered institutions (universities, research institutes, departments and agencies) eligible to do agricultural research. This research is mainly supported by the Ministries of Science, Education and Sport and of Agriculture, Forestry and Water Management. Croatia welcomed the Commission's intention to formally invite it as an observer as from 1 January 2006 to the Standing Committee for Agricultural Research.

#### International Scientific and Technological Cooperation

Croatia has around 135 scientific and technological agreements (including those in the nuclear field) with 38 different countries (among these with 15 EU Member States) and with 15 other countries under negotiation and a diversified cooperation with regional and international structures (e.g. COST, EUREKA, NATO, etc.). Croatia stated that it will fully accept all existing cooperation agreements of the EU and that it is aware of the fact that some of these agreements are going to be dealt with also in other chapters of the *acquis*.

As far as Croatia's existing bi- and multilateral agreements in the field of Atomic and Nuclear Energy are concerned, Croatia confirmed its readiness to bring these into compliance with the *acquis* if incompatible with the EURATOM Treaty or to renounce them.

#### Actions relating to 3% objective

Croatia has taken numerous initiatives in line and in accordance with the targets set by the Lisbon Strategy and in particular by the Barcelona objective. The Croatian Programme for

Innovative Technological Development (HITRA), which aims to establish an efficient national innovation system, is the most important one. HITRA has initiated socio-economic and cultural changes in the academic environment leading towards the idea of linking Croatia's domestic R&D and industrial development. Other measures taken by Croatia include the system of junior researchers, investing into universities and research equipment, employment incentive 'From University to Work', regulating intellectual property and 'One stop shop HITRO-HR'. The Gross Expenditure on R&D (GERD) as a percentage of GDP lies currently at around 1% (2003).

Croatia stated that it is aware of the need for an overall 'National 3% Action Plan'. This would help to mobilise and coordinate a broader range of policies and instruments and put in place the necessary mechanisms for monitoring implementation as well as results.

Since Croatia is not yet a member of CREST (the Scientific and Technological Research Committee), it did not participate in the Open Method of Coordination applied to the 3% objective carried out under the auspices of CREST. Croatia expressed its readiness to become an observer member of CREST.

#### Article 169 Initiative

Despite existing obstacles for successful application, such as an insufficient capacity for programme preparation and a limited scope of R&D activities, Croatia considers Article 169 initiatives as an important tool to influence the FP, to direct its own scientific policy and to broaden cooperation with different Member States. Croatia therefore participates in one project within the framework of ERA-NET and intends to participate in further joint actions.

#### Actions relating to mobility of researchers

Croatia supports the idea of encouraging more young people to embark on research careers and fully agrees to take into account and to be guided by the general principles and requirements of the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers. Although most of these principles and requirements are already implemented, Croatia will need to adopt a legal provision or strategy document to improve career prospects as well as to adopt a general regulation that enables early-stage researchers to claim their right to supervision.

Croatia's measures to facilitate the mobility of researchers and to support research careers include the recognition of experience gained through placements at other research institutions and of foreign educational qualifications, launching programmes for stimulating job creation in science and higher education and for young researchers, improving housing conditions of those employed at universities, as well as investing in institutions and equipment and providing equal access to accommodation in student dormitories for talented but socially disadvantaged students and for children of Croatian war veterans. Croatia needs to develop an action plan setting out measures to really attract students to study sciences as well as a strategy to cope with the inevitable challenges of market competition.

#### Actions relating to Science and Society

The 'Science and Society' dimension of the government-led research policy is the responsibility of the MSES, in cooperation with other relevant government bodies. This dimension is covered by several policy documents and laws, such as 'The Republic of Croatia's Development Strategy for the 21<sup>st</sup> Century - Science', but Croatia does not have a comprehensive action plan for science and society laid out in one document. It is partly covered by several strategic documents and consequently numerous activities exist but the dissemination of this information is still inadequate.

In Croatia, numerous activities and projects are being carried out by different institutions and organisations in the light of the Action Plan for Science and Society with the aim of raising awareness and improve understanding of science by citizens. These activities and projects include raising public awareness (e.g. by web portals, different types of awards, a Science Festival or a project called ‘Isle of Knowledge’), promoting scientific journalism, innovation and a culture of science and technology, encouraging a dialogue with citizens (e.g. by symposium or competition), fostering scientific education and careers (e.g. by journals) and developing skills for the knowledge society (e.g. E-School for Young Scientists). The university sector and NGOs are also developing best practices towards a higher level of communication with the public.

Regarding the ethical dimension of science, publicly funded research in Croatia is subject to specific rules of ethics which are set out by the Act on Scientific Activity and Higher Education and several other special legal acts.

As far as gender issues in science are concerned, around 43% of the total number of people employed in science are women, whereas representation in higher levels is relatively low (e.g. only around 23% of professors and around 9% of institute directors are women). The new National Policy for Promoting Gender Equality 2006-2010, the preparation of which is underway, already foresees proposals for measures aimed at promoting women in science.

### **III. ASSESSMENT OF THE DEGREE OF ALIGNMENT AND IMPLEMENTING CAPACITY**

Overall, Croatia has reached a good level of alignment with and capacity to implement the *acquis*. In order to prepare for the full application of the *acquis*, Croatia will need to ensure continuous and adequate availability of budgetary resources. Croatia will also need to encourage participation of industry in research projects, undertake actions to increase research facilities and to ensure coordinated and coherent actions on the different areas towards a European Research Area. In addition, Croatia needs to improve capacity building to take up EU funded research projects and ensure full association to all Framework Programmes (including 7<sup>th</sup> Framework Programme/EURATOM).

#### **III.a. Research Policy**

While Croatia faces a number of weaknesses such as a need for investment in research infrastructure, the existing problem of brain drain, the need to simplify implementation procedures and shortcomings in research policy and in the national research system for providing funding (e.g. lack of career development grants, too many small grants, regional imbalance), Croatia is already well placed to address the targets of the European Research Area. Croatia has set itself very ambitious targets and objectives, which need to be monitored in the coming years.

No legal adjustments are currently necessary for applying the Communication “Towards a European Research Area”.

#### **III.b. Framework Programmes**

##### EC Framework Programme

As far as FP6 is concerned, all actions already undertaken should facilitate Croatia’s increased participation in FP6 from its full association on 1 January 2006. The Commission will closely monitor developments in Croatia’s administrative capacity in this regard. A proper national coordination structure is needed in order to ensure a successful participation

in FP6. Regarding the activities of the JRC (direct actions), Croatia has been able to fully participate in specific actions organised for acceding and candidate countries.

#### EURATOM Framework Programme

Croatia is encouraged to consider positively its association to the EURATOM part of the 7<sup>th</sup> Framework Programme.

### **III.c. European Research Area**

#### European Research Fund for Coal and Steel

As an EC policy instrument, participation in the European Research Fund for Coal and Steel is mandatory for all new Member States. Given the eligibility from accession for research funding, a financial contribution from Croatia to the Fund will be required. The precise calculation of this contribution will need to be covered at a later stage under chapter 35 'Other'.

#### Agricultural Research

The adoption of a national act which regulates the scientific research in the field of agriculture is to be welcomed. Croatia will also be formally invited to attend the meetings of the Standing Committee for Agricultural Research as an observer.

#### International Scientific and Technological Cooperation

Due to their complementary status, the Commission does not expect at this stage any problems of implementation of the Scientific & Technological agreements. Concerning EURATOM related agreements, Croatia has submitted relevant information. If required, these will have to be brought into conformity with the *acquis*.

#### Actions relating to 3% objective

The initiative to establish an overall 'National 3% Action Plan', which will help Croatia to increase the investment in research in compliance with the targets set in the Lisbon Strategy, is welcomed.

The necessary procedures have been undertaken to involve Croatia as an observer of CREST as of the entry into force of its association agreement to FP6 on 1 January 2006. Its participation in the Open Method of Coordination is therefore expected in the near future.

Croatia also has the possibility to participate in the current RTD OMC-NET call for proposals.

#### Article 169 Initiative

It is to be welcomed that Croatia intends to participate in this particular field.

#### Actions relating to mobility of researchers

Croatia's actions, measures and intentions in this particular field are in compliance with the relevant EU policies and will help to improve the current situation. Croatia's involvement in the European Researcher's Mobility Portal and ERA-MORE project would be beneficial. Due to Croatia's upcoming association to FP6 on 1 January 2006, participation in the Steering Group on Human Resources and Mobility (SGHRM) in the European Research Area is recommended.

#### Actions relating to Science and Society

General targets comply with EU policies. Although there are numerous examples of good practice reflecting attempts to create a positive attitude towards science in society, continuing actions of all major actors of Croatian society are needed to follow the targets of 'Science and Society' as an integral part of FP6 and to follow the Action Plan on Science and Society (e.g. mechanisms of consultations with interest groups in the process of adopting new legislative measures should be defined; legal basis for respecting the ethical obligations of participating in FP6 should be created, etc.). An exchange of information with the Commission concerning the 'Science and Society' dimension is needed.

The new National Policy for Promoting Gender Equality 2006-2010, which especially aims at promoting women in science, is welcomed as representation of women in higher levels is relatively low.