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COMMUNICATION FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT

COOPERATION IN THE FIELD OF SCIENCE AND TECHNOLOGY BETWEEN THE EUROPEAN COMMUNITY AND THE COUNTRIES OF CENTRAL AND EASTERN EUROPE

INTRODUCTION

1. In June 1990 the Commission presented to Council and the European Parliament two communications, one on scientific and technological cooperation between the European Community and third countries; the other on scientific and technological cooperation between the European Community and the countries of Central and Eastern Europe.

The present communication is an elaboration of the previous ones in that it focuses on the situation of science and technology in Central and Eastern Europe and more in particular on practical arrangements for preparatory and exploratory actions to be undertaken in 1992 with the purpose to examine future cooperation in this field between the European Community and the countries of Central and Eastern Europe. These actions might lead to more significant activities to be included in the Fourth Framework Programme. In this context main attention is given to the allocation of the budget of 55 MECU available in 1992 to further these preparatory and pilot actions.

2. From the very beginning the European Community has supported the reforms in Central and Eastern Europe. For this reason it has, amongst others, provided humanitarian aid, launched the PHARE Operation, given technical assistance to the USSR, and contributed to the European Bank for Reconstruction and Development (EBRD).

PHARE is the main framework for assisting the countries of Central and Eastern Europe in their attempts to introduce economic restructuring, and includes activities in the fields of higher education training development (TEMPUS), investment promotion, economics (ACE), energy, the protection of the environment, health, agriculture, industry, trade and services.

3. With regard to the reform of the research systems in Central and Eastern Europe, the European Community has provided and is providing assistance and advice, be it on a limited scale. Part of this is being realised through cooperation activities

in the field of science and technology. These activities are undertaken in the framework of the association agreements and the agreements for trade and commercial and economic cooperation which the Community has signed with a number of countries in Central and Eastern Europe and which contain clauses on cooperation in the field of science and technology.¹

4. At the meetings of the Research Council on 29 June and 20 November 1990, the issue of scientific and technological cooperation between the European Community and the countries of Central and Eastern Europe was discussed. In this context special attention was paid to the COPERNICUS initiative (Community of Pan European Research Networks of Interdisciplinary Centres and Universities in Sciences), aimed at the creation of a pan-European research community. In their conclusions the twelve Ministers underlined the necessity to strengthen cooperation with Central and Eastern Europe, particularly in areas such as: environment, medical health, nuclear safety, rational use of energy, training and mobility. Such cooperation could contribute to the rehabilitation of the production systems in these countries.

5. Also the European Parliament has discussed on many occasions the issue of scientific and technological cooperation with Central and Eastern Europe. On 10 July 1990 and 8 October 1991, it adopted a resolution on the "Let's go East" initiative ("Let European Technicians and Scientists go East"), which underlined the need for such cooperation, and called for activities to promote exchanges of know-how and transfer of technology between East and West, to consolidate the scientific and technological potential of the countries in Central and Eastern Europe, to facilitate the integration of East European scientists into the European scientific community and assist governments and organisations in Central and Eastern Europe in defining a sound science and technology policy.

¹ The Community has signed association agreements with Czechoslovakia, Hungary and Poland; agreements on trade and commercial and economic cooperation have been signed with Bulgaria, Rumania and will in due course be signed with Albania and the Baltic States

6. Cooperation in the field of science and technology was one of the main themes at the Ministerial meeting of the OECD Committee on Scientific and Technological Policy, which was held in Paris on 10-11 March 1992. In their final communiqué, the 24 Ministers reinforced their commitment to further concrete activities on specific areas such as the training of researchers and scientists, the strengthening of the East European scientific and technological systems, the transfer of technology and the conversion of the military-industrial-complex.

SCIENCE AND TECHNOLOGY IN CENTRAL AND EASTERN EUROPE

7. The countries of Central and Eastern Europe have a long and varied tradition in the field of science and technology. There exists a large community of well trained scientists who have great expertise in fundamental research on primarily classical subjects such as mathematics, mechanics, theoretical physics and materials research.
8. The pool of sound knowledge in Central and Eastern Europe is generally underused and undervalued by both industry and by society as a whole. Thus its contribution to the competitiveness of industry and to economic growth is very limited.

Innovation in Central and Eastern Europe has been very modest, except for the military field, due to the isolated position of R&D, and the artificial separation between industry, the academies and universities. This has led to an obsolete production system with little consideration for the needs of the individual consumer and society as a whole. On the other hand the isolated position of research has sometimes led to the development of original approaches, concepts and methodologies in specific areas.

9. One of the main threats to the countries of Central and Eastern Europe is the brain-drain: the flow of highly qualified scientists to the West. Unless working conditions as well as the structures and the efficiency of the research system in

Central and Eastern Europe are seriously improved, this flow will continue.

10. To change the situation of science and technology in Central and Eastern Europe above all a change in mentality is necessary. This requires a new approach to science and technology which in its turn demands a change in the present academic and industrial structures.
11. At present a number of activities are underway in the countries of Central and Eastern Europe with the purpose of improving the situation of science and technology and restructuring the research and education systems. In this context, in particular, the project of the International Political Commission (IPC) on "the transformation of the education and research systems in Central and Eastern Europe" is noticeable. The IPC is an organisation which was established in 1991 by the education and research Ministers of Hungary, Poland and Czechoslovakia, with the purpose to discuss common problems and look jointly for solutions; it has an open character, meaning that also the responsible Ministers from other countries in the region may join.

The IPC has identified a number of studies to be undertaken in support of its "transformation project", the most important of which relate to the collection of reliable data, the preparation of a qualitative survey on research in Central and Eastern Europe, the identification of possible mechanisms that could be used to promote the transformation of the research system, and the relation between legislation and research. Part of these studies are promoted and financially supported by the European Community.

At its meeting on 17 January 1992, the IPC discussed possibilities for scientific and technological cooperation between the European Community and the countries of Central and Eastern Europe. On that occasion the modalities and priority themes mentioned below were given special attention.

COOPERATION IN THE FIELD OF SCIENCE AND TECHNOLOGY BETWEEN THE EUROPEAN COMMUNITY AND CENTRAL AND EASTERN EUROPE FINANCIAL ARRANGEMENTS OBJECTIVES AND MODALITIES

Financial arrangements

12. In previous years only a limited number of cooperation activities in the field of science and technology between the European Community and the countries of Central and Eastern Europe were undertaken. These were partly realised in the broader context of PHARE, or of the Scientific International Cooperation. Hence, in 1991 a limited number of preparatory actions (studies, missions, pilot projects) related to science and technology were defined and implemented, which, however, have provided a useful experience on which future activities can be founded.

13. The European Community budget for 1992 foresees three separate budgetlines (B6-8200; B6-8202 and B6-8203) with an accumulated amount of 55 MECU to allow additional preparatory and pilot actions: 40 MECU to support a number of exploratory cooperation projects in the field of science and technology between the Community and the countries of Central and Eastern Europe; 10 MECU to support, on a case by case basis, the participation of organisations from Central and Eastern Europe in those specific R&D programmes allowing such participation on a project-by-project basis, and 5 MECU to further their participation in COST.

Objectives

14. The overall objective of cooperation activities in the field of science and technology between the European Community and the countries of Central and Eastern Europe should be to contribute, in the mutual interest, to the rehabilitation of industry, and to promote the quality of life in the societies concerned. In this way cultural, methodological and structural gaps can be

eliminated and scientists from Central and Eastern Europe can be integrated in the broader European and world community of scientists. Here it is essential to establish durable contacts between researchers in the Community and those in Central and Eastern Europe, develop research networks and promote the preparation of joint research projects.

15. Cooperation activities in the field of science and technology between the European Community and the countries of Central and Eastern Europe should take particular account of the special features of these countries. Special attention should be paid to the management of research, the economics of research, the communication of research, and the institutions of research.

In allocating the budget of 55 MECU in 1992, special attention will be given to the objectives of COPERNICUS, and the follow-up actions to "Let's go East": EAST (European Assistance for Science and Technology) and GREEN (General Research in Environment for Eastern Nations) with the purpose to explore the perspectives of future cooperation in the field of science and technology.

Modalities

16. In the field of scientific and technological cooperation between the European Community and Central and Eastern Europe a number of modalities can be identified: training and mobility of scientists, the development of networks, the organisation of scientific conferences and workshops, the promotion of joint research projects, either on technologies of particular interest to the Eastern countries or through the participation of organisations from Central and Eastern Europe in COST and in those specific Community research programmes allowing such participation on a project by project basis. These modalities should be used in a coherent way to guarantee the most effective allocation of resources.

Scientific Training and Mobility

17. To guarantee an efficient introduction of modern technologies in industry in Central and Eastern Europe, the upgrading of the workforce is a prerequisite. A new generation of scientists and managers needs to be trained to meet the demands of a modern industry working in a competitive environment. Training needs will of course vary from level to level and from sector to sector. By giving scientists and managers from Eastern Europe the possibility to follow a training course in the Community or by sending renowned scientists and industrialists from the Community to the countries of Central and Eastern Europe, experiences can be shared and new techniques and working methods introduced. In the context of PHARE (the TEMPUS scheme) several of these activities are already undertaken, however, only at the level of higher education and outside the scope of science and technology.

In providing fellowships to scientists from Central and Eastern Europe it is important to avoid alienation from the home country and home organisation. For this reason, preference should be given to short-term fellowships with an average duration of 3 months. In addition it is necessary to guarantee that the fellow finally returns to his home state to prevent a brain-drain. For this purpose it is desirable that he or she possesses the necessary equipment and infrastructure in the home research organisation to be able to apply the experience and techniques obtained.

18. In 1992 on budgetline B6-8202, an amount of 15 MECU will be allocated to promote an exploratory action related to scientific training and mobility activities with Central and Eastern Europe. This will allow more than 2000 scientists from the East to spend some time in Western universities, research institutes and industries. In addition, scientists from the Community countries will be given the opportunity to spend a shorter period of time in universities and research organisations in the East to assist in the definition of a research strategy, the development of a sound research management, and the preparation of joint

research projects.

Special attention will be given to the proposal of the IPC to establish in Central and Eastern Europe as a pilot action special "chairs" to be filled by renowned brain drain migrants of the post-war period. These "chairs" should attract students and scientists from both Western and Eastern Europe and contribute to the creation of "centres of excellence" in that they should form small nuclei of high quality research and scientific training.

Networks and Conferences

19. The second modality for providing support in the field of science and technology is the development of networks and the organisation of conferences, seminars and workshops. Through the development of scientific and technological networks, contacts between scientists can be promoted which will contribute to the broader circulation of scientific and technological information. Special attention should be given to interlinking Central, Eastern and Community research institutions, universities and enterprises. In this context the development of open data communication networks and databases is essential.

Scientific conferences, seminars and workshops are also a useful instrument to enhance the contacts between scientists from Western and Eastern Europe who share common interest in specific subjects. Hence the exchange of scientific know-how and the generation of joint projects can be promoted.

20. In 1992 on budgetline B6-8202, an amount of 5 MECU will be devoted to promote the preparation and exploration of networks and the organisation of conferences.

Joint research projects

21. A third modality is cooperation in joint research projects between organisations from Central and Eastern Europe and those established in the Community. These projects should be based on the scientific and technological needs of the Eastern societies and take account of the specific features of the research capacity in Central and Eastern Europe. Through joint research projects the transfer of know-how and technology can be enhanced. In addition, they are a useful instrument to develop the endogenous scientific capacity in the East as well as to promote cooperation between industry and universities.
22. To support joint exploratory research projects between organisations in the Community and those in Central and Eastern Europe on specific areas of priority, in 1992 on budgetline B6-8202 an amount of 20 MECU will be allocated.

Participation in European Community Programmes

23. Cooperation in joint research projects can also be promoted through the participation of organisations from Central and Eastern Europe in the European Community research programmes. This is the more classical approach which allows scientists from Central and Eastern Europe to obtain access to new knowledge, create networks and become part of the pan-European community of researchers. Here in particular COST and the specific Community R&D programmes which have been opened to participation (on a project-by-project basis) to organisations from Central and Eastern Europe provide the appropriate frameworks. Both forms of cooperation have already demonstrated their value to research organisations in the Community and the EFTA countries.

However, to allow the participation of organisations from Central and Eastern Europe to Community research projects, special actions are required in the field of providing information and assistance (in the search for partners) and giving financial support.

24. For the purpose of promoting, as a pilot, the participation of organisations from Central and Eastern Europe in COST and in the specific research programmes of the Community in 1992, an amount of 5 and 10 MECU respectively is available on budgetlines B6-8200 and B6-8203.

- **COST**

25. COST (Cooperation Europeenne dans le domaine de la science et technologie) is one of the frameworks for European cooperation in the field of science and technology. It was founded in 1971 and involves at present 23 members. COST projects are concerted actions aimed at the coordination of the national parts of a commonly defined project. Each participant of a COST project is responsible for the funding and implementation of its own part. The European Community is providing the necessary administrative and secretarial support.

At the Ministerial meeting of 21-22 November 1991, COST welcomed 4 new members, 3 of which came from Central and Eastern Europe: Poland, Hungary and Czechoslovakia. This has strengthened COST as a cooperation body for pan-European research.

- **The Third Framework Programme for RTD**

26. In April 1990 the Council of Ministers adopted the Third Community Framework Programme for Research and Technological Development which has a duration of 5 years (1990 - 1994) and a budget of 5.7 billion ECU.

The Third Framework Programme is being implemented through 15 specific R&D programmes in 15 specific areas. So far 5 of these programmes have been opened for participation on a project-by-project basis to organisations from Central and Eastern Europe. These programmes include: Environment, Non-

nuclear Energies, Biomedicine and Health Research, Nuclear Fission Safety² and Human Capital and Mobility. The opening of the specific programmes of the Community to organisations from Central and Eastern Europe will allow these organisations to collaborate in joint research projects with enterprises, universities and research organisations established in the Community and EFTA countries. Thus it allows them to become part of the pan European community of scientists and researchers.

PRIORITIES FOR COOPERATION

27. In promoting cooperation between the European Community and the countries of Central and Eastern Europe, in general, and in allocating in 1992 the amount of 40 MECU of budgetline B6-8202 more specifically, clear priorities have to be set since the demands are great but resources limited.

On the basis of discussions with representatives from Central and Eastern Europe, (partly in the context of the IPC, as mentioned in paragraph 12) a number of fact-finding missions to these countries, discussions in Council and the European Parliament, conferences, workshops and numerous expressions of interest received from Eastern organisations for joint research projects, the following priority areas for the preparatory and exploration actions have emerged.

Human resources

28. The existence of a skilled workforce is a prerequisite for industrial prosperity and economic wealth. Although in the countries of Central and Eastern Europe a pool of qualified personnel exists, most qualifications do not meet the needs of a modern society which is based on a free market economy determined by the forces of supply and demand. For this reason, among others, scientific and technological training is necessary to allow a new generation of scientists to

² The Nuclear Fission Safety programme is adopted under the EURATOM Treaty

become familiarised with the latest techniques in research, innovation and their management.

Industrial rehabilitation

29. To ensure economic growth and prosperity it is essential that the industry sector in Central and Eastern Europe is restructured and rehabilitated. This requires deep changes in the present production and organisation systems. Industrial production needs to become efficient, clean and safe; end-products should be of high quality. This requires massive investments particularly in areas such as environmentally friendly technologies, energy and material saving. In addition, special attention should be given to the issue of industrial waste: minimisation and recycling of industrial wastes, and the safe disposal of toxic wastes. Greater awareness needs to be created concerning the contribution which sound measurements and testing methods can make to economic competitiveness.
30. Cooperation in the field of information and communication technologies with the countries of Central and Eastern Europe may contribute to the rehabilitation of industry and improve the situation in areas such as health care, environmental protection, banking and services. In this respect activities aimed at training and the creation of networks of excellence should be given priority.
31. Another aspect related to the rehabilitation of industry, which requires attention is that of primary and secondary raw materials. Here an upgrading of exploration and mining techniques and technologies is important, as well as the introduction of new methods for minerals processing.

Special attention should be given to developing further the strong points of industry-related science and technology available in Central and Eastern Europe.

Quality of life

32. The present state of the environment and medical health in Central and Eastern Europe requires drastic change. The pollution of air, soil and rivers in industrial areas is considerable. The quality of the public health service is poor and requires improvement. Through research and training activities the situation can be ameliorated. Activities in the field of the environment should focus on measuring and monitoring the state of the environment, the introduction of clean technologies in industry, and the disposal and recycling of industrial wastes (as mentioned above), the rehabilitation of polluted sites, and the cleaning of rivers and lakes.
33. Given the close link between environment and energy, it is of importance to promote energy conservation and the introduction of alternative sources of energy, and to pay special attention to the issue of nuclear safety, including radiation protection and reactor safety.
34. As far as health is concerned it is necessary to examine and monitor the drastic changes in the health care systems in Central and Eastern Europe. In this context special attention should be given to topics such as cost-effectiveness, legislation and health, and consumer satisfaction. Experience with the different health care systems in the Community could be presented in the form of case studies. In addition research on epidemiology, AIDS, Cancer and respiratory diseases in industrial areas is required. The relation between health and nutrition is another topic which should be given attention. Here research into food quality and the distribution and storage of food is important.

PROCEDURES AND CONDITIONS

35. Cooperation activities in the field of science and technology between the European Community and the countries of Central and Eastern Europe should be implemented in an efficient, flexible and transparent way. The same accounts

for the allocation of the budget of 55 MECU available in 1992 for preparatory, exploratory and pilot actions. Upon discussions with representatives and experts from Central and Eastern Europe, it was agreed that the mechanism of the call for proposals is an appropriate one, creating equal opportunities for all interested parties. The selection of proposals for projects should be done with the assistance of teams of independent experts coming both from Eastern and Western Europe. Selection criteria should be objective and include: scientific excellence, pre-competitiveness, potential exploitation of results and managerial skills. Preference would be given to regional cooperation projects involving organisations from several Central and Eastern European countries.

To guarantee an effective and rapid execution of the 55 MECU in 1992, a call for proposals is foreseen in the spring of 1992. Following the evaluation and selection of proposals the results will subsequently be communicated to the proposers.

36. Scientific and technological cooperation with Central and Eastern Europe should take place within the framework of the association agreements and the trade and commercial and economic agreements. In promoting this cooperation and allocating the amount of 55 MECU in 1992, it is essential to guarantee complementarity with the reform programmes which will be undertaken in the context of PHARE. According to priorities determined by the PHARE recipient countries, a number of the reform programmes could provide the appropriate infrastructure to support, amongst others, exploratory and pilot projects in the field of research.
37. Furthermore it is important to obtain a better overview of the different actions and programmes which the Member States of the Community have installed to strengthen cooperation in the field of science and technology with Central and Eastern Europe. Here a continuous exchange of views and experiences appears appropriate, to avoid duplication and guarantee the most effective allocation of resources. Meetings to that extent took place on 18 February and 6 April 1992 in Brussels with representatives of the Member States. Similar meetings were

held with the European Research Councils, the European Rectors Conference, the European associations of research organisations (FEICRO and EACRO), the members of IRDAC and the EAB (Esprit Advisory Board).

38. On the basis of discussions with representatives of the Member States and the Central and Eastern European countries and the different preparatory and pilot actions mentioned above, the perspectives can be explored for future cooperation in the field of science and technology between the European Community and the countries of Central and Eastern Europe, which might lead to more significant actions to be included in the Fourth Framework Programme.

**Cooperation in Science and Technology
with
Central and Eastern European Countries**

Call for proposals

1. Background

The Commission is launching several preparatory and pilot actions with the objective of exploring the perspectives of scientific and technological cooperation between the countries of Central and Eastern Europe and the European Community.

2. Participation

Participation is open to any physical and legal person established in the Member States of the European Community and in those countries of Central and Eastern Europe which have an agreement with the European Community covering cooperation in science and technology development. These countries are at present : Albania, Bulgaria, Czechoslovakia, Estonia, Hungary, Latvia, Lithuania, Poland and Romania. Participation of other countries is under consideration.

3. Description

The actions concerned are the following :

- A. Scientific and technical mobility involving nationals of the European Community and those of the Central and Eastern European countries (research fellowships). The areas include all exact and natural sciences, economic and management sciences as well as human and social sciences.
- B. Preparatory actions with a view to explore the setting up of pan-European scientific networks (action B1) and the organisation of and participation in conferences, workshops and seminars (action B2). The areas include all exact and natural sciences, economic and management sciences as well as human and social sciences.

- C. Joint research projects in priority areas, between organisations and enterprises, both public and private, of the European Community and the countries of Central and Eastern Europe. The areas include the quality of life (environmental protection, health protection, social sciences and societal problems) and the industrial technologies (information and communication technologies, materials and production, agro-industry and food).
- D. Support for the participation of organisations and enterprises of Central and Eastern European countries in projects of those specific Community programmes for research and technological development which allow such participation on a project by project basis.
- E. Support for the participation of organisations and enterprises established in Central and Eastern European countries in COST actions.

4. Submission of proposals

- 4.1 The Commission invites interested persons and organisations to submit proposals related to one of the actions set out in paragraph 3 or a combination of these.
- 4.2 Proposals for the mobility scheme under paragraph 3A should include an applicant and an host institution. On request, the Commission may help to establish contacts with potential host organisations.

Proposals for scientific networks (action B1) under paragraph 3B should include at least two partners of the European Community and two partners from Central and Eastern Europe. The proposals for conferences, workshops and seminars (action B2) may originate from interested persons or organisations established in countries of Central and Eastern Europe or of the European Community.

Proposals for participation in joint research projects under paragraph 3C should include at least one partner from Central and Eastern European countries and one partner of a Member State of the European Community. Preference will be given to proposals exhibiting a more extended cooperation, notably those which include several countries of Central and Eastern Europe together with several partners in the European Community.

Expressions of interest are expected for actions 3D and 3E.

- 4.3 Selected proposals will be funded by the Commission according to the conditions laid down in the information package.
- 4.4 Proposals for participation in actions A, B1, B2 and C and expressions of interest for actions D and E, must be received by the Commission of the European Community in Brussels by 17.00 hours, 7 August 1992 at the latest, at the following address :

Commission of the European Community
Scientific and Technical Cooperation with Central and Eastern European countries
75 rue Montoyer
B-1040 Brussels
Fax: +32.2.2363308

5. Information

The description of the priority areas, the conditions required for participation in the actions concerned as well as application forms are included in the information package which can be obtained at the address mentioned in paragraph 4.4.