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COMMUNICATION FROM THE COMMISSION

# Cooperation in science and technology between the European Union and the countries of Central and Eastern Europe on the one hand and the new independent States of the former Soviet Union on the other

CONTENTS

## O. RESUME

### 1. Preliminary measures

The European Community has provided support to the countries of Central and Eastern Europe since the beginning of the reform process, in order to help smooth their transition to a market economy. The European Parliament adopted several resolutions on scientific and technological cooperation with these States from 1990. Following the request from the G7 at the Summit of the Arch (14-16 July 1989),[1] the European Commission was given the task of implementing a series of initiatives to help the Central and East European countries make this transition to a market economy. As a practical support measure, the Community launched the PHARE operation for certain Central and East European countries in 1990 and TACIS for the new independent States of the former Soviet Union in 1991.

In 1991 and the beginning of 1992 the Commission of the European Communities ran an R&D programme as a supplement to PHARE comprising eight projects and covering the main countries of Central and Eastern Europe (PECO).[2]

### 2. Cooperation with the countries of Central and Eastern Europe

A number of priorities in the field of aid to research emerged from the European Parliament resolutions, discussions with the Council and with the representatives of Central and Eastern Europe, notably the industrial rehabilitation of these countries and promotion of the quality of life.

### 2.1 Communication and call for proposals of May 1992 (PECO-COPERNICUS 92/93)

In May 1992 the Commission presented to the Council the guidelines for the action to be taken with the countries of Central and Eastern Europe starting that same year. A call for proposals covering all the Central and East European countries was published with August 1992 as the closing date. This call for proposals concerned the participation of those countries in the third framework programme, in joint research projects, scientific networks, fellowships and COST[3], the amount available being ECU 55 million.

The interest aroused in those countries was substantial, and the response by far exceeded the financial possibilities: 11 750 proposals were drawn up for a total of ECU 1.6 billion, i.e. 30 times more than the available amount. The proposals were

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[1] G7: Group of seven most industrialized countries.

[2] See note No 8.

[3] COST = European Cooperation in the field of Scientific and Technical Research.

evaluated by external assessors from Eastern and Western Europe, who considered that the quality of many proposals was excellent. The Commission decided to finance an initial batch of 3 039 projects (including 2 500 fellowships) in December 1992.

Given the magnitude and the quality of the response to the call for proposals, some of the 1993 resources were allocated to activities that had been denied funding in 1992; the funding of 194 joint research projects for a total of ECU 31 million was decided in July 1993, following which another batch of 33 joint research projects for a total of ECU 7.4 million was adopted in November 1993.

The PECO-COPERNICUS 92/93 programme will thus have served to finance over 3 200 projects for a total of ECU 93 million.

The proposals selected correspond to the objectives set in the communication of 6 May 1992 laying the foundations for the action, the European Parliament resolutions and the remarks in the budget. They are of a high scientific quality, and should thus help to boost research both in those countries and in the Community, and satisfy the criterion of mutual benefit.

Some practical difficulties were encountered on implementing the first measure, but they were overcome in the 1993 and 1994 operations. Because of the very large number of proposals received for PECO-COPERNICUS 1992 reflecting the enormous interest in the Eastern countries, the delay between the closing date for the call for proposals and the financing of activities appeared excessively long, and the selection that had to be made inevitably involved disappointing a very large number of would-be participants. The new calls for proposals have thus been more carefully targeted to avoid such a discrepancy between demand and available resources.

## 2.2 Participation of the countries of Central and Eastern Europe in the third framework programme 1993 (participation-PECO 1993)

The budgetary authority provided appropriations of ECU 17.7 million in 1993 to promote participation by the countries of Central and Eastern Europe in the five specific programmes of the third framework programme open to third countries in Europe (biomedicine and health, environment, non-nuclear energy, safety of nuclear fission, human capital and mobility).

The Commission published a call for expressions of interest, the closing date of which was July 1993. It received 653 proposals by that date. Following evaluation with the aid of external experts, the Commission decided on 9 December 1993 to fund the 278 projects that had passed scrutiny. However, the financing of 83 projects relating to human capital and mobility was postponed to 1994 in view of budgetary constraints in 1993.

3. Cooperation with the new independent States of the former Soviet Union (NIS)

Research and development was very advanced in the former Soviet Union in the areas of basic science, science of military interest and prestige activities. It was therefore appropriate to maintain this high but heterogeneous quality and cooperate with these countries for mutual benefit, while enabling the military scientific potential to be converted to civil applications.

The most significant action in the cooperation field was the creation in June 1993 of INTAS, the International Association for the Promotion of Cooperation with Scientists from the new independent States of the former Soviet Union. This association under Belgian private law comprises the Member States, Austria, Finland, Norway, Sweden and Switzerland. The bulk of the financing is provided by the Community. INTAS projects cover the entire spectrum of science including economics, human and social sciences.

In June 1993 the INTAS General Assembly approved a first batch of 54 joint research projects, seminars, scientific networks and study fellowships for a total of ECU 4 million.

At its General Assembly of 21 December 1993, INTAS adopted 509 cooperation projects between laboratories in Western Europe and the former Soviet Union. The total contribution of INTAS to these projects is ECU 21.6 million. A furthr batch of 459 propsals was approved by the Assembly on 22 July 1994.

4. 1994 activities

Call for proposals COPERNICUS 1994:
This call concerns the countries of Central and Eastern Europe but the new independent States of the former Soviet Union (NIS) are eligible to take part additionally. The fields covered have been chosen to complement the five specific programmes open to the former. Funding of ECU 57 million has been provided. The Commission has received 1641 proposals requesting total funding of ECU 560 million.

Participation in the five specific programmes of the third framework programme open to the countries of Central and Eastern Europe in 1994:
A call for expressions of interest published on 6 April 1994 opens up these programmes to participation by the Central and East European countries and the new independent States. In addition, the activities chosen in 1993 relating to human capital and mobility in particular, which could not be financed in 1993 owing to budgetary constraints, will receive funding in 1994. Funding of ECU 29.5 million has been provided.

5. Fourth framework programme (1994-98)

The political objective of bringing together the two parts of Europe separated since the end of the Second World War is leading to the progressive integration of R&D in the countries of Eastern Europe with that of the West.

In this spirit, the cooperation with those countries which, until now, has been considered to be a preparatory measure and has been financed on the basis of annual decisions, will henceforth be fully integrated in the fourth framework programme. It is planned to open all the specific programmes to European third countries, notably the East European countries. However, the average annual expenditure provided for in the fourth framework programme will be substantially lower than in 1994. Consequently, it will be necessary to concentrate activities, taking account of the specific problems of the countries concerned.

## 6. Conclusion

The Community has embarked on cooperation to mutual benefit with the countries of Central and Eastern Europe and the NIS in the field of science and technology. The complete action and the financial amount reached 250 MECU for the period 1992-1994, brought to the attention that the Community is very interested with the specific problems of sector activities. The initial results confirm the interest generated in the countries concerned. The choice of projects selected has led to action that is improving the quality of life in these countries. Cooperation has made it possible to maintain some of the human potential and in particular has strengthened the links between researchers in East and West.

Integrating these activities in the fourth framework programme will have the advantage of providing several years' continuity. The cooperation will be coordinated with the activities of the PHARE and TACIS programmes, and with the scientific and technological cooperation activities initiated by the Member States with Eastern Europe.

# 1. INTRODUCTION

## 1.1 The context, preliminary measures

The Community has supported the countries of Central and Eastern Europe since the beginning of the reform process in order to ease their transition towards a market economy. It provided humanitarian aid, granted loans to support macroeconomic policies for reconstruction and development and procured technical assistance.

The countries of Central and Eastern Europe (PECO) and the new independent States of the former Soviet Union have a long and varied tradition in the field of science and technology. There is a large, highly-qualified scientific community with enormous expertise, particularly in fields such as mathematics, theoretical physics, mechanics, basic computer science, electronics and telecommunications theory.

This scientific potential, developed primarily for military and prestige purposes, achieved excellence in certain areas, mainly by adopting original approaches and using novel concepts and methodologies. However, this store of knowledge is frequently poorly utilized and its contribution to improving the competitiveness of industry, economic growth and the quality of life (environment, health) is extremely limited.

The recent changes in Eastern Europe profoundly upset the established balance and reduced research funding, while rising prices make it difficult for researchers to meet their basic needs and make travel abroad virtually impossible. In addition, investments in laboratories or access to specialist journals have ceased to be a realistic possibility. The result is an internal and external brain drain: many scientists are quitting their work for other sectors (commerce, services, etc.), or are attempting to continue their research work in other countries offering opportunities for advanced research.

On 10 July 1990 the European Parliament adopted a resolution on aspects of scientific and technical cooperation with the countries of Central and Eastern Europe.[4] On 8 October 1991[5] Parliament stressed that scientific and technological cooperation was one of the best ways of supporting and accelerating progress and the economic integration of Europe. The resolution also advocated opening up the specific programmes of the framework programme to third countries, and called on the Commission to present proposals to this end.

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[4] OJ C 231, 17.9.1990.

[5] OJ C 280, 28.10.1991, p. 38.

Following a request from the G7 at the Summit of the Arch (14-16 July 1989), the Commission was given the task of implementing a number of initiatives to help the countries of Central and Eastern Europe make the transition to a market economy.

The Commission launched the PHARE operation to help these countries in 1990.[6] Initially aimed at Poland and Hungary, the scope was extended in mid-1990 to Bulgaria, Czechoslovakia, Romania and Yugoslavia. The programme is designed to provide assistance to the countries of Central and Eastern Europe for economic restructuring, and comprises activities in the field of improved training at the level of higher education, promotion of investments, energy, health, agriculture and environmental protection. Appropriations totalling ECU 1 billion were allocated to this programme in 1992. In the education, training and R&D sectors, the amount for 1992 was ECU 140 million (of which 2.5 million were allocated to technical assistance related to research), in 1993 the figure was 10 million for technical assistance to research and no provision has been made for 1994 with the exception of ECU 4 million for COSINE.[7]

However, given the number of fields covered by the PHARE programme, its contribution to research restructuring in Central and Eastern Europe is necessarily limited, so that it needed to be supplemented by targeted cooperation activities in the field of science and technology. These activities would increase contacts between researchers in East and West, permit research on rehabilitation of industrial processes, contribute to preserving the high standards of science achieved and thus, in the final analysis, combat the brain drain. Given the scientific excellence in these countries, such activities were also of mutual benefit. The Commission therefore decided to supplement the PHARE activities by specific cooperation projects in science and technology. The European Parliament, in keeping with its approach in the field of science and technology for the East European countries, endorsed the two budget headings relating to cooperation in the field of science and technology separate from PHARE.

In addition to the PHARE activities in 1991 relating primarily to research infrastructure mainly in Hungary and Czechoslovakia (for a sum of ECU 30 million), the Commission has therefore launched an initial programme of eight projects covering the main Central

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[6] Council Regulation No 3906/89 of 18.12.1989 (OJ L 357, of 23.12.89, p.11), as amended by Regulation No 2698/90 of 17 December 1990 (OJ L 257, 21.9.1990, p. 1), Regulation No 3800/91 of 23.12.1991 (OJ L 357, 28.12.1991, p. 10), Regulation No 2334/92 of 7 August 1992 (OJ L 227, 11.8.1992, p. 1)

[7] COSINE is the pilot structure for a data network to interconnect national research data networks that already exist or have been developed. The pilot project was defined in the framework of the EUREKA project.

and East European countries for a total of ECU 5 million.[8] The purpose of such a programme is to prepare future action.

The action in support of the Central and East European countries has been supplemented by specific action to assist the countries of the former Soviet Union.

Since the beginning of the 1990s, the European Community has been engaged in an association process with the countries of the former Soviet Union. As in the case of the Central and East European countries, it has devised a policy based on cooperation and assistance.

The European Community's TACIS programme[9] (Technical Assistance to the Commonwealth of Independent States) is aimed at the countries of the former Soviet Union (new independent States of the former Soviet Union).[10] Launched in 1991, the aim of this programme is to rehabilitate and develop the infrastructures essential to a modern economy. As in the case of PHARE, each country wishing to benefit from technical assistance in the form of a grant for an activity of its choice must identify its own needs and present them to the Commission. Up to now, efforts have mainly concentrated on energy, training, nuclear safety, food production and distribution, human resources, transport, telecommunications and financial services. Strictly speaking, scientific cooperation did not figure in the PHARE and TACIS programmes, but their wide scope has permitted some forms of assistance to scientific research.

Aware that it is necessary in the field of science and technology to move from ad hoc measures to more global action in order to benefit from the synergies of coordinated

European action, the Commission of the European Communities presented a

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[8] 1. Materials technology transfer in support of Hungarian industry. 2. Project for the realization of technological parks and business incubation centres in Poland 3. Fight against infectious diseases in Romania 4. Post-harvest metabolism in plant organs and tissues in Czechoslovakia 5. Developing algorithms and programming techniques 6. Computer science and information technology in Poland; preservation of human potential 7. The transformation of the higher education and research systems in Central and Eastern Europe 8. The involvement of research organizations from Central and Eastern Europe in ETEX, European Tracer Experiment.

[9] Regulation No 2053/93, (OJ L 187 of 29.7.1993).

[10] Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Uzbekistan, Russian Federation, Tajikistan, Turkmenistan, Ukraine.

communication to the Council and European Parliament on 6 May 1992.[11]

## 2. COOPERATION WITH THE COUNTRIES OF CENTRAL AND EASTERN EUROPE (PECO) 1992/93

A number of priorities in the field of aid to research emerged from European Parliament resolutions, discussions with the Council and with the representatives of Central and Eastern Europe, notably the industrial rehabilitation of these countries and promotion of the quality of life.

### 2.1 The Communication of 6 May 1992: Cooperation in the field of science and technology with the countries of Central and Eastern Europe

**The objectives**

In view of the general objective set out in the communication of 6 May 1992, it was considered essential to establish ongoing contacts between researchers in Central and Eastern Europe and their counterparts in the Community in order to prepare future integration. Such action also had the aim of reinforcing the PHARE operations in the specific field of science and technology. Synergies with action by Member States were also to be sought.

**The means**

Two specific budget headings in the 1992 European Community budget were used to finance these measures:[12] (Annex1, Table 1) :

- B6-8202[13]
  to promote research and development cooperation with the countries of Central and Eastern Europe

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[11] SEC(92) 785 final, 11 May 1992.

[12] In addition to these two budget headings, a sum of ECU 5 million was allocated in 1992 under budget heading B6-8200 to finance COST activities.

[13] The 1994 budget also mentions the new independent States of the former Soviet Union and changes the heading B6-8202 to B6-8373. ECU 40 million were provided under heading B6-8202 and ECU 10 million under B6-8203 in 1992. Further details are given in the section on "Financing of the activities" on p. 16.

- B6-8203[14]
  to achieve progressive integration of organizations and undertakings from the Central and East European countries by enabling them to participate in the specific programmes. At present, five specific programmes of the third framework programme are open to these countries.[15]

**The priorities**

Clear priorities have been established in defining cooperation between the European Community and the countries of Central and Eastern Europe in order to make the best possible use of the limited budgetary resources in the face of substantial demand, and to benefit from synergies with PHARE and the direct activities of Member States.

A number of priorities have emerged from European Parliament resolutions, discussions with the Council and with representatives from Central and Eastern Europe, in the framework of exploratory missions, which are discussed in the following.

Human resources

The existence of a skilled workforce is an essential condition for industrial and economic prosperity. Although the Central and East European countries do have a large body of skilled personnel, for the most part their qualifications are scarcely suited to the needs of modern society in a market economy. This is one of the reasons why continuing training in science and technology is considered necessary in order to permit a new generation of scientists to become acquainted with the latest research, innovation and management techniques. The action to promote human resources was therefore not designed to train new researchers, but rather to preserve the existing potential by enabling them to adapt to new technologies.

Industrial rehabilitation

In order to ensure economic growth and prosperity, it is essential to restructure and rehabilitate industry in Central and Eastern Europe. This presupposes not only profound changes in the current production and organization systems, but also in the research and development underpinning these activities. Industrial production must become efficient, clean and safe, and the finished products be of high quality. This implies massive investment, particularly in research on "clean" technologies, energy and rational use of

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[14] The 1994 budget also mentions the participation of the new independent States of the former Soviet Union and changes heading B6-8203 to B6-8374.

[15] Biomedicine and health, environment, non-nuclear energy, safety of nuclear fission, human capital and mobility.

materials. In this context, particular attention must be paid to training and the creation of research networks of excellence in the key sectors.

Cooperation with the Central and East European countries in the field of information and communications technologies can, for its part, contribute to industrial rehabilitation and to improvement of the situation in the health sector, the banking system and other services.

Another aspect to be taken into consideration in industrial rehabilitation is that of primary and secondary raw materials. Research in this field can bring considerable improvements. The improvement of mining techniques, resource prospecting and corresponding technologies is important in this context, as well as the introduction of new ore processing methods.

Particular attention must also be paid to the problem of industrial wastes, i.e. the minimization and recycling of industrial wastes and the safe disposal of toxic wastes.

Quality of life

The current state of the environment and health in Central and Eastern Europe calls for drastic changes. The air, soil and rivers in the industrial regions are highly polluted. The environment was not a priority: it was neglected in favour of research linked to heavy industry, in particular for defence purposes. The quality of public health services is mediocre and needs to be improved.

Research and training activities can make an effective contribution to improving this situation. In the environment sector, this should provide the requisite knowledge and know-how relating to measurements and monitoring, the introduction of clean technologies in industry, disposal and recycling of toxic wastes, the rehabilitation of polluted sites and the cleaning up of lakes and rivers. Particular attention must be paid to research on nuclear safety, more specifically in the area of radiation protection and reactor safety.

In view of the interrelationships between energy and the environment, there is an urgent need for research to promote energy saving and introduce alternative energy sources which will improve the efficiency of power stations and, at the same time, reduce their pollutant emissions.

In the health sector, there is a need to analyse and manage the substantial changes to be introduced to the health care systems of Central and Eastern Europe. The emphasis here should be placed on efficiency and control of health expenditure, health legislation and the protection of users' interests. Experience with the various health systems in the European Community could be presented in the form of case studies. In addition, there is a need for epidemiological research, research on AIDS, cancer and respiratory diseases in the industrialized regions. The link between health and nutrition is another subject that deserves attention. In this context, research on the quality of food, distribution chains and preservation procedures is of enormous importance.

## 2.2 PECO-COPERNICUS 1992/1993

### The call for proposals

The communication of 6 May 1992 was accompanied by a call for proposals covering the following types of activity:

- scientific and technical mobility
- scientific networks, conferences, seminars
- joint research projects
- participation in the open specific programmes of the third framework programme
- participation in COST activities.

Scientific and technical mobility

There is a need for more contacts and exchanges between the scientific and industrial community of Western Europe and researchers from Eastern Europe in order to help researchers from the East to adjust to an open, competitive R&D system.

In order to avoid alienation from the country and organization of origin, priority has been given to fellowships (GO-WEST) of short duration (three months), facilitating the return to the home country and thus preventing a brain drain.[16] To a lesser extent and in order to forge links, fellowships enabling researchers from the West to work in the East (GO-EAST) have also been financed (see Annex 1, Tables 5 and 6).

Resources of ECU 15 million have been provided for fellowships.

Scientific networks, conferences and seminars

The second support measure concerns scientific networks, conferences and seminars. The development of scientific exchanges and contacts leads to a wealth of joint projects and the progressive integration of scientists from eastern and western Europe. ECU 5 million has been allocated to this measure.

Joint research projects

The third measure concerns cooperation in the framework of joint research projects between organizations from Central and Eastern Europe and organizations from the Community Member States. These projects are designed to promote indigenous

[16] The Alexander Von Humboldt Foundation carried out a separate evaluation of the fellowship dossiers for Germany, and the results of its evaluation confirm those of the Commission.

development of scientific capacity in the Eastern countries and to promote cooperation between industry and academia. ECU 20 million were allocated to these measures in 1992.

Participation in the Community's open specific programmes and in COST activities

Participation by the Central and Eastern European countries in Community research programmes should enable scientists from the East to gain access to new knowledge, to participate in networks and to become integrated in the pan-European research community. Given the high standard of researchers from Central and Eastern Europe, they will benefit from knowledge synergies in the two parts of Europe through participating in joint research projects, and the mutual benefit aspect is particularly strong. ECU 10 million have been allocated to this activity.

Five specific programmes of the third framework programme are concerned: environment,[17] biomedicine and health,[18] non-nuclear energy[19] safety of nuclear fission[20] and human capital and mobility.[21]
Finally, a budget of ECU 5 million has served to finance participation by these countries in COST projects.

**The response to the call for proposals**

The Commission departments received 11 750 proposals in response to this call (see Annex 1, Table 2). Faced with such a mammoth task, the Commission had to take special measures to cope and ensure fair and just treatment.

The breakdown of the proposals received is as follows:

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|---|---|
| Mobility "Go West" | 43% |
| Mobility "Go East" | 4% |
| Scientific Networks | 4% |
| Conferences, seminars | 14% |
| Joint research projects | 22% |
| Participation in Community | |

[17] Council Decision 91/354/EEC of 7 June 1991 (OJ No L 192, 16.7.1991, p. 29).

[18] Council Decision 91/505/EEC of 9 September 1991 (OJ No L 267, 24.9.1991, p. 25).

[19] Council Decision 91/484/EEC of 9 September 1991 (OJ No L 257, 14.9.1991, p. 37).

[20] Council Decision 91/626/Euratom of 28 November 1991 (OJ No L 336, 7.12.1991, p. 42).

[21] Council Decision 92/217/EEC of 16 March 1992 (OJ No L 107, 24.4.1992, p. 1).

| | |
|---|---|
| programmes | 7% |
| COST | 6% |

The funding requested was four times greater than the resources available for scientific and technical mobility, 50 times greater for conferences or networks and 65 times greater for joint research projects. On average, the funding requested was 30 times greater than the available resources.

**Evaluation**

In view of the number of proposals and in order to ensure fair treatment, evaluation was carried out by 200 independent experts from Eastern (40%) and Western (60%) Europe, working in seven groups. The evaluation work took an estimated nine man-years.

The evaluation criteria for mobility, networks, conferences and joint research projects were: value of East/West cooperation, scientific and technical quality, credibility of the participants, feasibility and potential results.

For the evaluation of proposals to participate in Community programmes and COST activities, the coordinators of the projects concerned were invited to give their opinion, and the Commission departments drew up recommendations on financing.

The evaluations were categorized as: excellent, very good, good, average and unsatisfactory.
The proposals judged "excellent" and "very good" were those earmarked for financing.
The proposals judged "good" were intended for possible reconsideration.

In view of the scale and quality of the response to the call for proposals, it was decided to give priority in 1992 to financing fellowships, and to devote part of the budget resources for 1993 to funding those projects judged "excellent" or "very good" for which no money had been available in 1992.

**Financing of the activities**

The budgetary authority had authorized: (see Annex 1, Table 1) :

in 1992:

- ECU 5 million under budget heading B6-8200 to finance COST activities;
- ECU 40 million under heading B6-8202 to finance joint research projects, scientific networks, conferences and study fellowships;
- ECU 10 million under heading B6-8203 to enable the Eastern countries to participate in the five open specific programmes of the third framework programme;

in 1993:

- ECU 70 million (ECU 45 million, plus a transfer of ECU 25 million authorized on 5 July 1993) under heading B6-8202, used primarily to finance the projects adopted at the 1992 evaluation concerning the PECO-COPERNICUS 92 call for proposals and the INTAS projects;[22]
- ECU 17.7 million (including a transfer of ECU 7 million on 5.7.1993) under heading B6-8203 to finance participation in the five specific programmes.

The projects relating to the PECO-COPERNICUS 92/93 call for proposals were thus financed by three Commission decisions:

- the first Commission decision of 4.12.92 concerning 3 039 proposals, for a total of ECU 55 million;[23]
- the second Commission decision of 16.7.93 relating to the selection of 194 joint research projects (for a total of ECU 31 million);[24]
- a third Commission decision of 15.11.93 relating to 33 joint research projects for a total of ECU 7.4 million.[25]

Analysis by type of activity

Annex 1, Table 3 gives the number of proposals financed by type of activity and by country, and Table 4 in the same Annex gives the funding according to the same breakdown.

Analysis by research sector

* The environment was defined as one of the priorities. In several of these countries, a growing awareness reflected in environmental movements is one of the key issues of the political reform process.

  The response in the environment sector to the Community initiative was excellent, in particular considering that, until recently, the environment and environment-related research was not a priority.

  There is a large potential of young researchers in the environment sciences who could easily be mobilized, and the number of proposals for joint research projects

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[22] The remainder was used primarily to finance the Community contribution to supplementary measures (see point 5 below).

[23] Unpublished decision - Written procedure No E/1906/92.

[24] Unpublished decision - Written procedure No E/1164/93.

[25] Unpublished decision - Written procedure No E/1921/93.

shows that the R&D links between East and West in this sector had already been forged.

The quality of proposals was generally high, and the projects financed are of a high international standard and often pioneering in character.

* The scientific quality of the proposals on biomedicine and health was generally good. The research on epidemiology, AIDS and neurological diseases in particular deserves mention.

* The main fields in the social sciences are reorganization of industrial relations, employment prospects and organization of the labour market.

  Scientific networks are an important aspect of activities in the social sciences. The proportion of networks is also much higher here than in other disciplines. In general, participants from the East joined existing networks in the West, the creation of new research networks from scratch being very limited.

* Software and information systems accounted for 40% of the proposals in the communications and information technologies sector. The other proposals concerned microelectronics, data networks and telecommunications.

* The main subjects relating to materials were technologies (energy savings, clean production, etc.), R&D on materials (superconductors, metals, composites, ceramics) and processes (rapid solidification, catalysis, etc.). Some of the projects concerned energy (ore extraction, energy saving) and materials such as superconductors and ceramics.

* The main subjects in the agri-foodstuffs sector were primary production, nutrition and food quality, and consumption aspects.
  The proposals concerned national or regional problems; nevertheless, specific issues were studied (improvement of pisciculture, food preservation).

* A large part of basic science was devoted to physics, biochemistry and mathematics. In physics, there was particular emphasis on theoretical physics and optics.

Analysis by objectives

One of the first priorities was human resources. Following the political changes that occurred in the East, it was considered necessary to put in place a mechanism to promote researcher mobility. There was a need to halt the brain drain both to other sectors of activity and abroad. The award of short-term fellowships enabled researchers to stay in contact with their field and provided opportunities to return. In addition, this type of mobility helped to preserve links and to create new contacts, which could eventually lead to scientific networks or joint projects. The award of 2 300 study fellowships and the

integration of researchers from the East in the Community networks is one response to the objective set in the communication of 6 May 1992 (Annex 1 - Tables 5 and 6 give the breakdown of fellowships by country). Annex 2 gives a succinct analysis of the fellows' reports. An organization has also been designated in each Community country to monitor the fellows' progress (see Annex 2).

Many of the projects financed in the field of industrial rehabilitation concerned the treatment of industrial waste, so the PECO 92/93 programme contributed to cleaning up the production process. Examples include proposals for the treatment of waste water and solid wastes, including nuclear waste.

The many proposals in the environment and health sectors concerning the quality of life should help improve living conditions in these countries. Examples include the research on the impact of air pollution on forests and on possible links between air pollution and cancer. In addition, some of these activities are complementary to Community measures, and the funding of projects for the Central and Eastern European countries will permit synergies of mutual benefit. The studies on brain damage are worth mentioning in this context.

While implementation of the projects funded should improve the situation in the countries of Central and Eastern Europe, significant effects will not be felt for several years. Moreover, the participation of industries or undertakings in these research projects was low, a situation the COPERNICUS 1994 operation attempted to remedy by stressing the importance of their involvement. Finally, for the COPERNICUS 1992 call for proposals, no figure had been set for the breakdown of funding between East and West. The analysis of contracts shows that a substantial share of the funding went to the West. In order to redress the balance, COPERNICUS 1994 places a ceiling (25%) on funding of Western projects.

Annex 3 gives more detailed examples of projects funded.

## 2.3 PARTICIPATION/PECO 93 - participation in the five open specific programmes

### The call for proposals

As the lion's share of the resources in the 1993 budget (heading B6-8202) had been used to finance those projects of high quality which had been denied funding in 1992, the new call for proposals in 1993 (heading B6-8203) was limited to participation in the joint research projects under the five specific programmes of the framework programme open to the countries of Central and Eastern Europe: environment, safety of nuclear fission, non-nuclear energy, biomedicine and health, human capital and mobility.

In order to disseminate the list of open projects in each of the five specific programmes, a call for expressions of interest was sent to all the project coordinators at the end of

March 1993 and published in the countries of Central and Eastern Europe. The objective was to enable researchers from those countries to join Community partners in existing projects. The closing date was 2 July 1993.

Researchers from Central and Eastern Europe also had the possibility to participate in proposing new joint projects in the framework of two programmes (JOULE II and environment), for which calls for proposals were launched in the period in question. The Commission received 653 proposals for a total amount requested of ECU 93.9 million (see Annex 1, Table 7), which was five times more than the available resources (17.7 million under budget heading B6-8203).
Participation in the calls for proposals for the JOULE II and environment programmes was very limited.

**Evaluation**

The Commission's scientific staff evaluated the proposals with the aid of external assessors. Over 300 external assessors were called on to evaluate the scientific networks in particular (each dossier being evaluated by more than three different assessors). In addition, the committees for the programmes concerned were consulted and approved the proposed selection.

**Project financing**

In view of the budgetary constraints, 261 projects were selected for financing in 1993 (see Annex 1, table 8). The projects of the human capital and mobility programme were postponed to 1994.

Analysis by research field

Environment

It appears that, as in 1992, the environment is one of the priorities of the Central and Eastern European countries. This area attracted the largest number of proposals (141) after the human capital and mobility networks, and accounts for 21% of the proposals for total requested funding of ECU 18 million (Annex 1, table 7).

Given the special circumstances of the countries of Central and Eastern Europe, e.g. the exceptional conditions with regard to pollution (Silesia, Tatra mountains) or volcanic action (Rhodope mountains), the contribution of new data and special competence should benefit both the former and the European Community. 69 proposals were selected for financing from 1993.

Biomedicine and health

The health sector is also well represented; the Commission received 139 proposals

representing 21% of the total for a requested amount of ECU 18.5 million (Annex 1, table 7). These proposals cover the fields of occupational medicine, biomedical technology, research on AIDS, psychiatric diseases and neurology. The inclusion of data specific to the countries of Central and Eastern Europe and the competence of the researchers in this area should produce synergies between research in East and West. 88 proposals were selected for financing from 1993.

Non-nuclear energy

The Commission received 98 proposals requesting funding of ECU 16.6 million. 56 proposals were selected representing a sum to be financed of ECU 5.8 million (Annex 1, table 7).

These proposals cover a wide area: they include studies on the use of new energy sources as well as on improving existing systems and participation in the "clean coal" programme.

Safety of nuclear fission

The Commission received 59 proposals, requesting funding of ECU 5.9 million (Annex 1, table 7). Of these, 37 were selected for total funding of ECU 3.7 million. Monitoring and processing of nuclear waste occupy a prominent position.

Human capital and mobility

Participation in the human capital and mobility programme comprised three elements: networks, Euroconferences and large-scale facilities. The number of proposals was 20, 172 and 24 respectively requesting funding of ECU 34.3 million (Annex 1, table 7).

As this figure exceeded the available resources, it was decided in 1993 to finance them under the 1994 budget. A proposal for the evaluation of 83 projects by the Commission for an amount of ECU 6.98 million is in the course of being adopted.

Analysis by objectives

Experience in 1992 in the field of scientific and technical mobility showed high demand for such mobility, but also the limits to Community action in this area. Thus, having initiated a great deal of geographical mobility, the Commission's action should now be concentrated on those areas where it offers the maximum added value in relation to the Member States' activities.

In the area of improving the quality of life, there are a great many projects both in the environment and the health sector which aspire to this objective. Examples are projects to protect Mediterranean oak forests and studies on the impact of air pollution in cities on child health.

Notable examples of research in the field of industrial rehabilitation include the production of bioethanol from sorghum, electricity generation by wind turbines and waste processing.

Annex 3 gives some examples of projects accepted for financing.

### 2.4 Pilot projects

Two pilot programmes were launched on the basis of consultations and exchanges of views with the countries of Central and Eastern Europe in 1991:

CRIT (Cooperative Research in Information Technology) involves two Polish and one German institute engaged in theoretical research on informatics.

ALTEC (ALgorithms for future TEChnologies) involves four institutes from the Visegrad countries (Poland, Hungary, Czech Republic, Slovakia) and three from Member States of the European Union (France, Germany, Netherlands) working on algorithms.

The INDIS programme (INformation DISsemination in European RDT) involves partners from Central and Eastern Europe and also Russia. Its aim is to develop electronic dissemination of research data between East and West.

The CRIT and ALTEC projects have already borne fruit; it is difficult to judge the impact of the INDIS programme, as it is still in the start-up phase.

## 3. COOPERATION WITH THE NEW INDEPENDENT STATES OF THE FORMER SOVIET UNION (NIS)
## International Association INTAS
## TACIS/Nuclear (ISTC cf. p. 27 - 1994 activities)
## Pilot projects

The activities mentioned above cover the countries of Central and Eastern Europe but exclude the new independent States of the former Soviet Union.[26] The internationally renowned scientific community of the countries of the former Soviet Union is today threatened by the turbulent economic and administrative changes in progress.

Research and development was on a very high level in the former Soviet Union in the field of basic science, science of military interest and prestige activities. It was therefore appropriate to maintain this often excellent, although heterogeneous, quality and to

[26] With effect from 1994, budget heading B6-8373 is also open to the NIS.

cooperate with these countries for mutual benefit, while enabling the military scientific potential to be converted to civil applications.

Given the need to act quickly and in the light of a proposal from the scientists, supported at the highest level by several Member States, the Commission in 1992 proposed the setting up of the International Association for the Promotion of Cooperation with Scientists from the New Independent States of the former Soviet Union (INTAS). An initiative was also taken in the field of nuclear safety and the conversion of research staff in the military sector to civil activities.

### 3.1 International Association for the Promotion of Cooperation with Scientists from the New Independent States - INTAS

The founding members of this Association, in addition to the Commission, are the twelve Community Member States.[27] It is a private body under Belgian law and was officially inaugurated on 29 June 1993.[28]

Open to participation by any other country or organization, its aim is to mobilize the resources available for coordinated action to support the non-military scientific community of the independent States of the former Soviet Union.[29] Its objective is to promote through international efforts scientific research activities in those States by means of cooperation between their scientific institutes, universities and research centres and those of the member countries of the Association. The Association's objectives are to promote the vitality of scientific research in these countries, economic and social progress and the consolidation of democracy.

#### The INTAS structures

The Association has three organs: the General Assembly, the Scientific Council and the Secretariat.

The General Assembly is responsible for general policy regarding the conduct and implementation of activities. It is composed of two representatives for each member. Decisions are normally taken by two-thirds majority. However, unanimity is required for

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[27] Since being set up, Austria, Finland, Norway, Sweden and Switzerland have joined the association and other countries have applied to join.

[28] The "Moniteur Belge" of 9.12.1993 contains the rules of association of INTAS.

[29] Conversion of military industry to civil applications is provided for in the framework of ISTC (see page 30).

decisions on the admission of new members.

The Scientific Council has a maximum of 30 members, being scientists from all the member countries of the Association and from the independent States of the former Soviet Union. The members of the Council are generally nominated for a period of two years by the General Assembly. The Scientific Council considers scientific questions relating to the Association's activities. It has the following powers: to recommend to the General Assembly any decision relating to the evaluation of proposals and the selection of beneficiaries; to debate issues relating to the research areas and to submit to the General Assembly for approval the list of priority research areas.

The Secretariat is responsible for general running of the Association. It prepares the work programme and the draft budget, drafts the annual activity report, prepares the agenda for meetings of the General Assembly, launches calls for proposals for research projects, fellowships, workshops, seminars and networks.

**The projects accepted in 1993**

In June 1993 the General Assembly approved a first batch of 54 joint research projects, seminars, scientific networks and study fellowships for a total of ECU 4 million. These projects cover a variety of fields such as particle physics, fluid mechanics, chemistry, study of glaciation, microbiology, human genome, etc.

Following the Association's inauguration, a call for proposals was launched in mid-September 1993 with a closing date of 15 October 1993. 3 395 proposals were submitted to INTAS, representing a request for funding of ECU 912 million as against the 20 million available. The table below gives a breakdown of the proposals by sector of activity, and Annex 1, Table 10 gives the breakdown by country concerned and sector of activity.

The projects, which cover a broad spectrum of disciplines of the exact and natural sciences (physics, astrophysics, mathematics, chemistry, life sciences, earth sciences, environment); applied sciences and technologies (engineering sciences, aeronautics, space, etc.) and social, economic and human sciences, are all situated at the leading edge of current knowledge. The principle of INTAS action is cooperation for mutual benefit. However, involvement in joint operations also has the effect of enabling laboratory teams in the new independent States to remain in place and continue their work.

| Scientific sector | proposals % | funding % |
|---|---|---|
| 1. Physics, astronomy, astrophysics | 25 | 23 |
| 2. Mathematics, information science | 10 | 10 |
| 3. Chemistry | 11 | 11 |

| | | |
|---|---|---|
| 4. Life sciences | 17 | 17 |
| 5. Earth sciences, environment, energy | 16 | 19 |
| 6. Aeronautics, space | 12 | 11 |
| 7. Economics, human & social sciences | 10 | 11 |
| TOTAL | 100 | 100 |

The selection criteria for the proposals are: international collaboration, excellence and scientific and technical novelty, efficiency of project management, feasibility, potential result, quality/price ratio etc.

At its General Assembly on 21 December 1993, INTAS approved 509 cooperation projects between laboratories in Western Europe and laboratories in the former Soviet Union. The total contribution of INTAS to these projects is ECU 21.6 million.[30]

Each project involves at least two laboratories from Western Europe and one from one of the new countries of the former Soviet Union. Overall, 1 214 laboratories from the new independent States and 1 754 from the member countries of INTAS are already involved. A call for proposals in 1994 (see p. 28) will enable this action to be continued.

INTAS was originally set up as a pilot initiative to the end of December 1994. The Commission will present a proposal to the Council in due course after evaluation of the pilot phase.

### 3.2 Nuclear safety

The safety of nuclear installations is a major preoccupation of all the countries of the former Soviet Union, but they are also dependent on this energy form for their energy supply. One of the Commission's priorities is to enable them to continue using this energy source while ensuring that all safety and environmental protection criteria are met. The European Union is currently initiating a series of measures on nuclear safety.

The first concerns the opening of the Community programme on nuclear safety to the new independent States of the former Soviet Union. The conditions of participation for them are identical to those applying to the countries of Central and Eastern Europe.

The second initiative in this field is the negotiation of a specific arrangement with Russia on nuclear safety. The objective of this arrangement is twofold: firstly, the definition of activities of a high scientific standard and accepted at international level and, secondly, the launch of joint studies. There is no lack of topics of concern in this field: reactor safety, radiation protection, management of nuclear waste, decommissioning of nuclear

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[30] Most of INTAS' funds come from the Community budget (B6-8373), namely ECU 4 million in 1992 and 22 million in 1993; in addition, in 1993, Germany and France each contributed ECU 102 000, Austria ECU 519 000, Switzerland ECU 925 000 and Belgium ECU 50 000. Other countries contributed by seconding staff to INTAS.

installations, research and technological development on the monitoring of nuclear material.

The research and development activities complement the technical assistance provided to improve the safety of existing power stations in the countries of Central and Eastern Europe and the former Soviet Union. The RTD concerns two areas: reduction of the consequences of the Chernobyl accident and the participation of teams from Central and Eastern Europe in the multinational projects of the "safety of nuclear fission" programme.

Since 1992, annual appropriations have been allocated to EC/CIS cooperation projects on the consequences of the Chernobyl accident. These projects in the framework of the "radiation protection" activities primarily concern joint EC/CIS research on alleviating the consequences of the accident through three main research topics: measures to reduce the effects of radioactive pollution of the environment at Chernobyl, development of contingency plans for future nuclear accidents and health protection of the populations and workers directly affected.

The objective of these joint projects is not only to contribute to a better understanding of the effects of large-scale radioactive pollution of the environment, validation of models for the transfer of radioactivity to man, estimation of the doses received or objective quantification of the impact on the health of the populations concerned. It is also necessary to help the CIS authorities to take appropriate measures to limit the radiological, health, economic and social consequences (dealing with the effects of the Chernobyl accident accounts for between 10 and 15% of the budgets of Belarus and the Ukraine).

In this context, seven cooperation projects implemented jointly by research institutes from the EC and CIS were first launched in 1992. Three new projects were added in 1993. At present, there are 16 such projects. Around 200 institutes and laboratories from the two sides (120 from the CIS and 80 from the EC) are involved.

As far as the legal arrangements are concerned, these projects are the result of an agreement signed on 23 June 1992 between the Commission and the Ministries responsible for matters relating to Chernobyl from the three CIS Republics mainly affected by the accident: the Russian Federation, the Ukraine and Belarus. The cooperation agreement is monitored by a coordination committee comprising, on the part of the CIS, the ministers and the deputy ministers.

The appropriations allocated to these measures were ECU 2.2 million in 1992, ECU 4.5 million in 1993 and ECU 7.5 million in 1994. The laboratories from the European Union participating in these activities were chosen on the basis of calls for proposals in 1992 and 1993.

Nuclear safety, finally, is also part of the TACIS programme. The EC/CIS cooperation agreement on the consequences of the Chernobyl accident is being implemented in close liaison with the activities of the TACIS programme on the same subjects. The "Nuclear Safety" part of TACIS has been devoted since 1991 to improving the safety of the various reactor types operating in the CIS, training and strengthening of the authorities responsible for safety. Another aspect of TACIS is the encouragement of technology

transfer from the West and the award of subcontracts to local institutes (including ISTC[31]) for specific tasks.

The appropriations for this measure (excluding TACIS) come from budget heading B6–8201: cooperation with the independent States of the former Soviet Union in the field of nuclear safety. A sum of ECU 7 million was allocated in 1992, ECU 7 million in 1993 and ECU 11 million in 1994.

### 3.3 Pilot projects: ACTS
### Other activities

In several fields, particularly information technology, Russian scientists have taken part in measures financed by the Community.

The ACTS project (Algorithms and Computational Tools for Complex Systems) was launched in 1992 and covers algorithms applied to high-performance computers for modelling complex, distributed systems. Two Community partners and four Russian research groups are currently working on this project.

Other activities include the project that began in January 1994 designed to set up and develop an information network and services, and to interconnect the European Union and the countries of Central and Eastern Europe. Russian partners are participating in the seven East and West European research groups.

Where possible and appropriate, Russian research teams have been integrated in Community action in progress: for example, three Russian teams of internationally renowned specialists in theoretical research on information science are currently cooperating with more than six Community academic and industrial research teams. In other areas where there is a need for greater understanding of cooperation possibilities, workshops have been organized with the support of the Commission in Russia and the Ukraine on computer-aided design and automation.

All these research activities in the information technology and infrastructure sector have been financed in full from the Community budget (international cooperation and ESPRIT headings) for a total of approximately ECU 3 million.

## 4. 1994 ACTIVITIES

### 4.1 Call for proposals COPERNICUS 1994 (with involvement of NIS)

A call for proposals COPERNICUS 1994 targeting the countries of Central and Eastern Europe was announced on 15 December 1993[32] and published in the Official Journal on 1 February 1994.[33] The new independent States of the former Soviet Union may participate as an adjunct to participation by the countries of Central and Eastern Europe.

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31 See p. 30.

32 OJ C 338, 15.12.1993, p. 19.

33 OJ C 30, 1.2.1994, p. 14.

Collaboration between the NIS and West European countries is already covered by INTAS, so COPERNICUS only permits NIS participation as an adjunct to a consortium including participation by two countries from Central and Eastern Europe and the Community.

Fields covered

Six fields are covered by this call for proposals:

- information technologies;
- communication technologies and language engineering;
- manufacturing, production, processing and materials;
- measurements and testing;
- agri-foodstuffs;
- biotechnology.

This call for proposals continues in 1994 the action begun in 1992 in a more targeted fashion, in order to meet the technology and research needs of Central and Eastern Europe and the NIS and to strengthen synergies with Community research.

Conditions of participation

The proposals for participation in the joint research projects must involve at least two partners from two different countries in Central and Eastern Europe and one partner from a Member State of the European Union.
Proposals for concerted action must involve at least two partners from the European Union (from two different countries) and two from two different countries in Central and Eastern Europe. Priority will be given to proposals involving at least one industrial undertaking. The NIS of the former Soviet Union may join in these activities (joint research projects or researcher networks) in the six fields covered by the call for proposals as an adjunct to participation by the countries of Central and Eastern Europe.

For this activity, ECU 57 million will be allocated from budget heading B6–8373: "cooperation with the countries of Central and Eastern Europe and the independent States of the former Soviet Union".

Response to the call for proposals

The call for proposals closed on 2 May 1994. The Commission received 1 641 proposals by the closing date. Annex 1, Table 11 gives a breakdown of the 1 641 proposals by sector and country. Annex 1, Table 9 give a breakdown of coordinators by nationality and participating countries.

These proposals were evaluated with the aid of external assessors between 6 and 30 June 1994. Over 120 assessors from Eastern and Western Europe took part. (This evaluation took a total of 1 200 person/days, evenly spread between Eastern and Western Europe).

Evaluation

Evaluation was based on seven criteria:

- conformity with the goal and the objectives of the call for proposals
- scientific and technical quality
- cooperation EC/Central and Eastern Europe (beneficial aspects)
- credibility
- feasibility
- potential results and development of future research activities
- costs/benefits.

In order to facilitate the evaluation, the same criteria and the same evaluation sheets were used in the six sectors of the call for proposals. However, the external experts were allocated to one of the six fields on the basis of their knowledge. The proposals were judged as excellent, very good, good, average and poor. Only those proposals judged excellent are likely to be funded. The best of the proposals judged to be very good have been put on a reserve list.

Selection

Selection of the proposals to be financed should take place in the coming weeks, but it can already be noted at this stage that:

- the requested funding is eleven times greater than the resources available;
- a large number of proposals are considered to be excellent and very good[34] and not all the proposals judged excellent can be financed owing to budgetary constraints;
- the desire for consortia of several countries expressed in the call for proposals has already produced a positive result, since on average six participants form part of the same consortium.

This action complements the call for expression of interest PECO/NIS 94 relating to the opening of the five specific programmes of the third framework programme.

### 4.2 Participation in the five open specific programmes of the third framework programme PECO/NIS 1994

Budget heading B6-8374 provides ECU 29.5 million for "Support for participation of the countries of Central and Eastern Europe and the new independent States of the former Soviet Union in the specific programmes of the framework programme".
Part of this amount is to be used for the human capital and mobility projects for which no funding was available in 1993.

A call for expression of interest has enabled the countries of Central and Eastern Europe to participate in the five specific programmes of the third framework programme (see point 2.3). The measure is similar to that described for 1993, but it includes the new countries of the former Soviet Union for the first time.

The call for proposals closed on 6 June 1994. The Commission received 438 proposals requesting funding of ECU 54 million. Annex 1, table 12 gives a breakdown of these proposals by sector of activity.

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[34] The external assessors noticed an improvement in the quality of proposals compared with COPERNICUS 1992.

### 4.3 International association for the promotion of cooperation with scientists from the new independent States of the former Soviet Union (INTAS)

A new call for proposals closed on 8 April 1994; ECU 20 million from budget heading B6-8373 has been scheduled for this measure. This call for proposals concerns physics, astronomy, astrophysics, mathematics, telecommunications and information technologies, chemistry, life sciences, environment, energy, aeronautics, space, human sciences, economic and social sciences.

The projects must include at least one participant from the former Soviet Union and two participants from different countries belonging to INTAS. The Commission received 4 783 proposals by the closing date of 1 June 1994 requesting a total of ECU 723 million. 79% of this was requested by countries of the former Soviet Union. Annex 1, table 13 gives a breakdown of the requests by scientific sector.

### 4.4 ISTC (International Science and Technology Centre)

The ISTC was set up by an agreement of 27 November 1992 to assist and encourage military engineers and scientists from the former Soviet Union to convert to civil activities. The Centre is financed by a contribution of ECU 20 million from the Community (TACIS), $25 million from the USA and $17 million from Japan.

The representatives of the four founding members, the European Union, Japan, the Russian Federation and the USA, adopted the rules of the Centre together with the administrative and financial documents at the first meeting of the governing body.[35]

At the meeting of the governing body on 17/18 April 1994, 23 projects were declared eligible for funding in the field of nuclear safety, environmental protection, chemistry and laser technology. The total value of these projects is $11.6 million.[36] These projects will provide work for more than 3 000 people for a period of between several months and three years. The meeting of July 1994 brought the number of proposals accepted for funding to 54, of which 36 will be cofinanced by the European Union.

## 5. COMPLEMENTARY MEASURES

### Financing of "European chairs"

The creation of European chairs financed from the Community budget has enabled eminent professors who had emigrated from Central and Eastern Europe to return to their countries, where they can apply the knowledge acquired in the West in combination with

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[35] The four founding members have been joined by Georgia and Finland. Sweden, Canada, Belarus, Armenia and Kazakhstan may become members in the near future.

[36] The European Union will cofinance 15 proposals (ten with the USA only, one with Japan and four with the USA and Japan). The fields covered by European Union funding are: nuclear safety (seven out of seven proposals), environment (three out of five proposals), materials (one out of four proposals). The European Union's share of total funding is 3 million (15% of the total).

their knowledge of national structures.

Budget heading B6-8202 also made provision for supporting links between departments, scientific disciplines and social sciences in the European universities which would form the basis for a (pan)-European research community. The Commission, in the framework of its links with the International Political Commission[37] and with the support of the Institute of Human Sciences (Vienna), is financing the creation of the following European chairs with a view to encouraging the "transformation of education and research systems in the countries of Central and Eastern Europe":

- Charles University, Prague, Czech Republic, in molecular biology
- Eötvos Lorand University, Budapest, Hungary, in nuclear physics
- Warsaw University, Poland, in social sciences.

The budget for these chairs is ECU 150 000 per chair and year; it is planned to finance a further four chairs in 1994 from budget heading B6-8373:

- European Legal Systems, Palacky University, Olomouc, Czech Republic
- Social Policy, Eötvös Lorand University, Budapest, Hungary
- Social Policy, Comenius University, Bratislava, Slovak Republic
- European Legal Systems, Maria Curie-Sklodowska-University, Lublin, Poland.

**Advanced communications and telematics**

Following an ad hoc call for proposals launched on 7 August 1993, the Commission decided to finance two projects to establish teleworking facilities and installations for mutual access to the information networks and services for interconnection of scientists in a region and the rest of Europe.

The first project will begin with a study and an analysis of existing networks, communications services, information sources and user requirements, and make proposals regarding the scientific and technological information to be supplied and exchanged in a region. It will attempt to demonstrate the efficiency of providing an advanced information service and will submit plans for phased financing and the setting up of regional and national information systems.

The second project will cater for the immediate communication needs of 2 000 users in 15 countries by providing basic equipment, access to the national and international network, electronic mail and other database services, as well as training and the necessary back-up. The amount scheduled for this measure is ECU 0.6 million for the first project and ECU 1.6 million for the second.

**Other measures planned**

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[37] Formed in 1991, it comprises the research and science ministers of Hungary, Poland and the Czech and Slovak Republics.

As we have already seen in the section on the PECO 92/93 initiative, the Commission has provided support for the participation of scientists from the Central and East European countries and the NIS in conferences, seminars, and colloquia. This action has continued in 1994: the European Union's financial contribution covered the travel and subsistence costs of about 200 scientists from the East in order to enable them to take part in around 20 initiatives held in the countries of the European Union, Central and Eastern Europe and the former Soviet Union. The scientific fields covered are varied, including cellular biology, cancer research, protection of the ocean environment, metallurgy and materials, cryogenic engineering, anti-proton physics, electromagnetism and fluid dynamics. The selection criteria were the scientific quality of the initiatives, the repute of the participants and the role played by the scientists from the East as rapporteur or authors of papers. This support for the mobility of scientists and cultural exchanges should be continued in 1995.

## 6. CONCLUSIONS

Community cooperation activities in the field of science and technology have been conducted both with the countries of Central and Eastern Europe and the new independent States of the former Soviet Union.

* As far as the countries of Central and Eastern Europe (excluding the NIS) are concerned, the Community has succeeded in launching a large scale programme which made it possible to finance in 1992/93 more than 3 500 proposals received in response to the Commission's calls for proposals, that were chosen by a fair selection procedure and ensure synergies with action by the Member States and in the framework of PHARE.

  More than 110 MECU is permitted to finance over 2 500 fellowships and 650 joint research projects have been initiated in less than two years to promote, firstly, science and technology in the countries of Central and Eastern Europe as a key component of their social and economic progress and, secondly, scientific and technical cooperation with European Community researchers.

  The proposals selected correspond to the objectives set in the communication of 6 May 1992 laying the foundations for this action, the European Parliament resolutions and the remarks in the budget. They are of a high scientific quality, so that they should boost research both in these countries and in the European Community and satisfy the criterion of mutual benefit.

  When the action was first implemented, certain practical difficulties emerged which were successfully overcome in the 1993 and 1994 operation. In the case of PECO-COPERNICUS 92/93, the time that elapsed between the closure of the call for proposals and the financing of the measures may have appeared too long, even allowing for the fact that a selection procedure based on evaluation by external assessors takes time, and that the large number of dossiers involved (over 11 000) calls for a structured approach. The sheer volume of dossiers represented a substantial workload for the potential beneficiaries and the Commission departments. Above all, however, a selection process necessarily involves disappointment for a very large number of candidates who were not selected. The new calls for proposals have thus been more carefully targeted to avoid the discrepancy between number of requests and available resources.

The Commission departments, mindful of the time lag in the whole process, attempted to speed up the procedure for participation in the five open specific programmes: PECO 1993. The call for proposals was closed on 2 July 1993 and the commitments were made in December (for a total of ECU 17.7 million), i.e. in less than six months.

Finally, the measures in progress in 1994 both for participation PECO/NIS 94 and COPERNICUS 1994 benefit from the lessons of experience: more targeted action in priority areas, information distributed more widely in the Eastern countries, limits on the funding going to Western projects, accelerated contract award procedures.

* For the new independent States of the former Soviet Union, INTAS (International Association for the Promotion of Cooperation with Scientists from the new independent States of the former Soviet Union) was created on the Commission's initiative in 1993 and has already selected 563 projects to receive funding of ECU 25 million. Since 1994, the NIS have been eligible for the scientific and technical cooperation activities managed by the Commission, and they are included in its 1994 plans for COPERNICUS/NIS 1994 and participation in the five open specific programmes. Finally, in the nuclear sector, the Commission will have contributed a total of ECU 14 million over the past two years, leading to a better understanding of the effects of radioactive pollution and helping the CIS authorities to take appropriate measures to limit the consequences.

* On 21 and 22 June 1993, the European Council in Copenhagen called on the Commission to make proposals on opening up new programmes to the associated countries of Central and Eastern Europe. The Commission proposed to the Council of the European Union that the specific programmes of the fourth framework programme should be opened up to all European countries.

  The action of Parliament to extend scientific and technical cooperation to the countries of Central and Eastern Europe and the NIS, and of the Council in opening up new programmes, illustrates the European Union's commitment to these countries. The practical implementation of this opening policy will depend on the available resources. The reduction in the amount of resources available compared with the Commission's proposals and with the sums available for cooperation in 93/94 is substantial, so that radical choices must be made. It is therefore more important than ever to establish priorities by common accord and to coordinate the activities with PHARE and TACIS and with Member States' cooperation measures. It is also essential to allow the countries of Central and Eastern Europe to use other Community instruments to finance their participation in the projects of the fourth framework programme.

* To conclude, the Community has acted to cooperate with the countries of Central and Eastern Europe and the NIS in the field of science and technology. The magnitude of the action and of the sums involved clearly shows the Community's concern regarding the specific problems of this sector. The extension of cooperation to the whole of the fourth framework programme will pave the way to integration of research and technology in Europe to mutual advantage.

ANNEX 0

List of acronyms

| | |
|---|---|
| CIS | Commonwealth of Independent States |
| COPERNICUS | Action in support of the countries of Central and Eastern Europe and, from 1994, the new independent States of the former Soviet Union in the field of research, outside the five specific programmes open to third countries. |
| COST | European Cooperation in the field of Scientific and Technical Research. |
| EC | European Community |
| ECU | European Currency Unit. |
| GO EAST | European Parliament initiative enabling researchers from the West to spend time in the East. |
| G7 | Group of seven most industrialized countries. |
| INTAS | International Association for the promotion of cooperation with scientists from the new independent States of the former Soviet Union. |
| ISTC | International science and technology centre: its aim is to reorient scientists in the military sector to civil applications. |
| MECU | Million ECU |
| NIS | New Independent States of the former Soviet Union. |
| OECD | Organization for Economic Cooperation and Development. |
| OJEC | Official Journal of the European Communities. |
| PAS | Promotion, accompanying and support measures |
| PECO | Countries of Central and Eastern Europe. |
| PECO 92/93 | Participation of the countries of Central and Eastern Europe in the five open specific programmes 92/93. |
| PHARE | Poland-Hungary aid to economic restructuring. Community aid programme now covering the countries of Central Europe and the Baltic States. |

[redacted]

[redacted]

**ANNEXES**

0. List of acronyms.

1. Relative statistics for PECO actions 1992/93

2. Overall analysis of reports to the Commission and hence on the PECO action from the point of view of the participants.

3. Examples of the match between the proposals adopted and the objectives set in the communication to the Council.

| | |
|---|---|
| R&D | Research and development. |
| S&T | Science and technology. |
| TACIS | Technical assistance to the Commonwealth of Independent States. |

ANNEX 1

## Statistical tables

**COPERNICUS 1994**



**1994 PARTICIPATION IN THE FRAMEWORK PROGRAMME**



**INTAS 1994**

TABLE 1

**Development of total funding (non-nuclear)**

**for the countries of Central and Eastern Europe**

**(million ECU)**

| | B6-8373 (formerly 8202) | B6-8374 (formerly 8203) | Total |
|---|---|---|---|
| 1991 | 5 (*) | 0 | 5 |
| 1992 | 45 (**) | 10 | 55 |
| 1993 | 70 | 17.7 | 87.7 |
| 1994 | 77 | 29.5 | 106.5 |
| FP4 (annual average) | - | - | 52 (***) |

(*) heading B6-8200

(**) incl. 5 under heading B6-8200

(***) approximate amount planned

TABLE 2

## PECO/COPERNICUS 1992/93

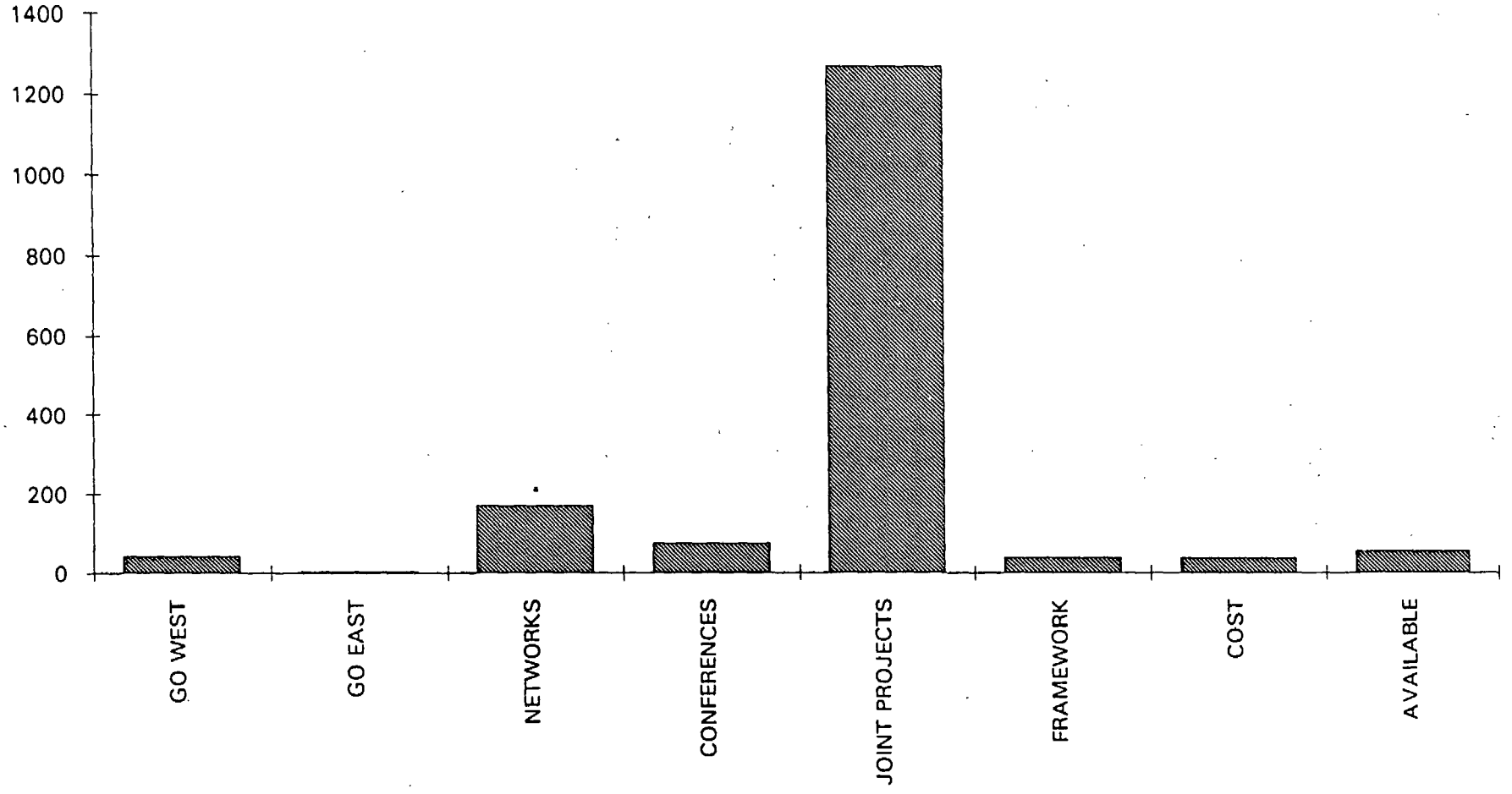
**Received proposals, number and requested funding per action line**

| Action | Number of proposals | Total funding requested MECUs |
|---|---|---|
| Mobility - Go West | 5 093 | 43 |
| Mobility - Go East | 391 | 3 |
| Mobility - Total | 5 484 | 47 |
| Networks | 501 | 170 |
| Conferences | 1 651 | 75 |
| Joint Research Projects | 2 574 | 1 270 |
| Community Programmes | 774 | 39 |
| COST | 764 | 38 |
| Total | 11 748 | 1685 |

## PECO/COPERNICUS 1992/93

FIGURE 1

Comparison of requested and available funds (MECU)



# PECO/COPERNICUS 1992/93

Funded proposals, all actions, country breakdown for number of projects

| | Fellowships | Net-works | Con-ferences | Joint projects* | Framework progr. | COST | TOTAL |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| Albania | 103 | 0 | 1 | 0 | 0 | 1 | 105 |
| Belgium | 10 | 6 | 7 | 17 | 0 | 0 | 40 |
| Bulgaria | 392 | 0 | 11 | 0 | 8 | 11 | 422 |
| Czechoslovakia | 441 | 1 | 18 | 0 | 38 | 36 | 534 |
| Czech Republic | 1 | 0 | 0 | 2 | 0 | 0 | 3 |
| Germany | 46 | 10 | 14 | 66 | 1 | 0 | 137 |
| Denmark | 1 | 0 | 2 | 3 | 0 | 0 | 6 |
| Estonia | 50 | 0 | 3 | 0 | 4 | 0 | 57 |
| Spain | 7 | 1 | 3 | 8 | 0 | 0 | 19 |
| France | 43 | 10 | 16 | 28 | 0 | 0 | 97 |
| Great Britain | 48 | 18 | 17 | 45 | 1 | 0 | 129 |
| Greece | 16 | 4 | 2 | 7 | 1 | 0 | 30 |
| Croatia | 4 | 0 | 0 | 0 | 0 | 0 | 4 |
| Hungary | 245 | 0 | 27 | 4 | 30 | 47 | 353 |
| Ireland | 6 | 0 | 1 | 1 | 0 | 0 | 8 |
| Italy | 30 | 1 | 3 | 15 | 0 | 0 | 49 |
| Lithuania | 38 | 0 | 2 | 1 | 3 | 1 | 46 |
| Luxemburg | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Latvia | 26 | 0 | 1 | 0 | 3 | 1 | 31 |
| Netherlands | 12 | 2 | 12 | 19 | 1 | 0 | 46 |
| Others | 10 | 0 | 1 | 0 | 0 | 0 | 11 |
| Poland | 609 | 0 | 32 | 5 | 28 | 32 | 706 |
| Portugal | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Romania | 361 | 0 | 4 | 0 | 10 | 5 | 380 |
| Slovenia | 31 | 1 | 1 | 1 | 3 | 13 | 50 |
| Slovak Republic | 0 | 0 | 1 | 1 | 0 | 0 | 2 |
| TOTAL | 2.531 | 64 | 179 | 223 | 131 | 147 | 3.265 |

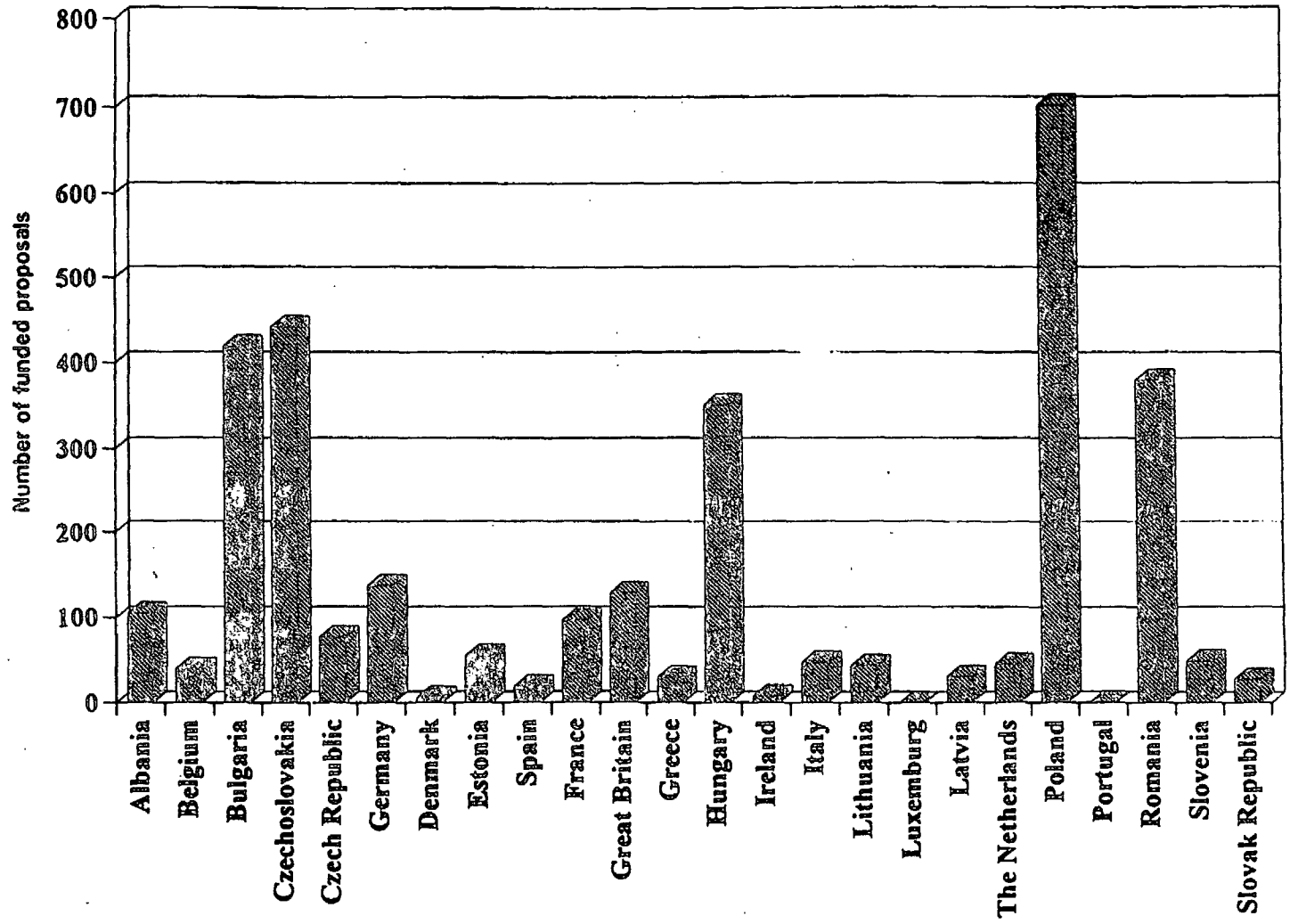
TABLE 3

* Country of coordinator;

Figure 2

# PECO/COPERNICUS 1992/93

Funded proposals, all actions, country breakdown for number of projects



# PECO/COPERNICUS 1992/93

Funded proposals, all actions, country breakdown for funding (in K ECUs)

| | Fellowships | Networks | Conferences | Joint Projects | Framework Progr. | COST | TOTAL |
|---|---|---|---|---|---|---|---|
| Albania | 834 | 43 | 1 | 460 | 0 | 35 | 1.373 |
| Belgium | 76 | 228 | 155 | 1.258 | 0 | 0 | 1.717 |
| Bulgaria | 3.109 | 251 | 102 | 1.689 | 363 | 343 | 5.858 |
| Czechoslovakia | 3.408 | 825 | 189 | 89 | 2.552 | 1.162 | 8.224 |
| Czech Republic | 8 | 0 | 0 | 4.584 | 0 | 0 | 4.592 |
| Germany | 358 | 514 | 284 | 7.389 | 100 | 0 | 8.644 |
| Denmark | 8 | 66 | 25 | 624 | 0 | 0 | 723 |
| Estonia | 397 | 56 | 21 | 840 | 159 | 0 | 1.473 |
| Spain | 57 | 138 | 31 | 1.166 | 0 | 0 | 1.392 |
| France | 336 | 411 | 435 | 3.080 | 0 | 0 | 4.262 |
| Great Britain | 375 | 564 | 349 | 6.284 | 693 | 0 | 8.265 |
| Greece | 134 | 81 | 42 | 747 | 50 | 0 | 1.054 |
| Croatia | 31 | 0 | 0 | 0 | 0 | 0 | 31 |
| Hungary | 1.935 | 647 | 269 | 5.827 | 2.747 | 1.666 | 13.091 |
| Ireland | 49 | 8 | 40 | 214 | 0 | 0 | 310 |
| Italy | 249 | 200 | 49 | 1.566 | 0 | 0 | 2.063 |
| Lithuania | 302 | 110 | 20 | 342 | 260 | 25 | 1.059 |
| Luxemburg | 0 | 30 | 0 | 0 | 0 | 0 | 30 |
| Latvia | 205 | 27 | 1 | 546 | 185 | 27 | 991 |
| Netherlands | 92 | 177 | 186 | 1.709 | 220 | 0 | 2.383 |
| Others | 80 | 111 | 15 | 255 | 0 | 0 | 460 |
| Poland | 4.764 | 631 | 383 | 6.690 | 2.171 | 1.063 | 15.701 |
| Portugal | 9 | 58 | 0 | 226 | 0 | 0 | 293 |
| Romania | 2.863 | 223 | 83 | 1.286 | 402 | 120 | 4.978 |
| Slovenia | 244 | 41 | 9 | 446 | 220 | 559 | 1.519 |
| Slovak Republic | 0 | 0 | 12 | 1.423 | 0 | 0 | 1.435 |
| TOTAL | 19.921 | 5.438 | 2.700 | 48.741 | 10.121 | 5.000 | 91.921 |

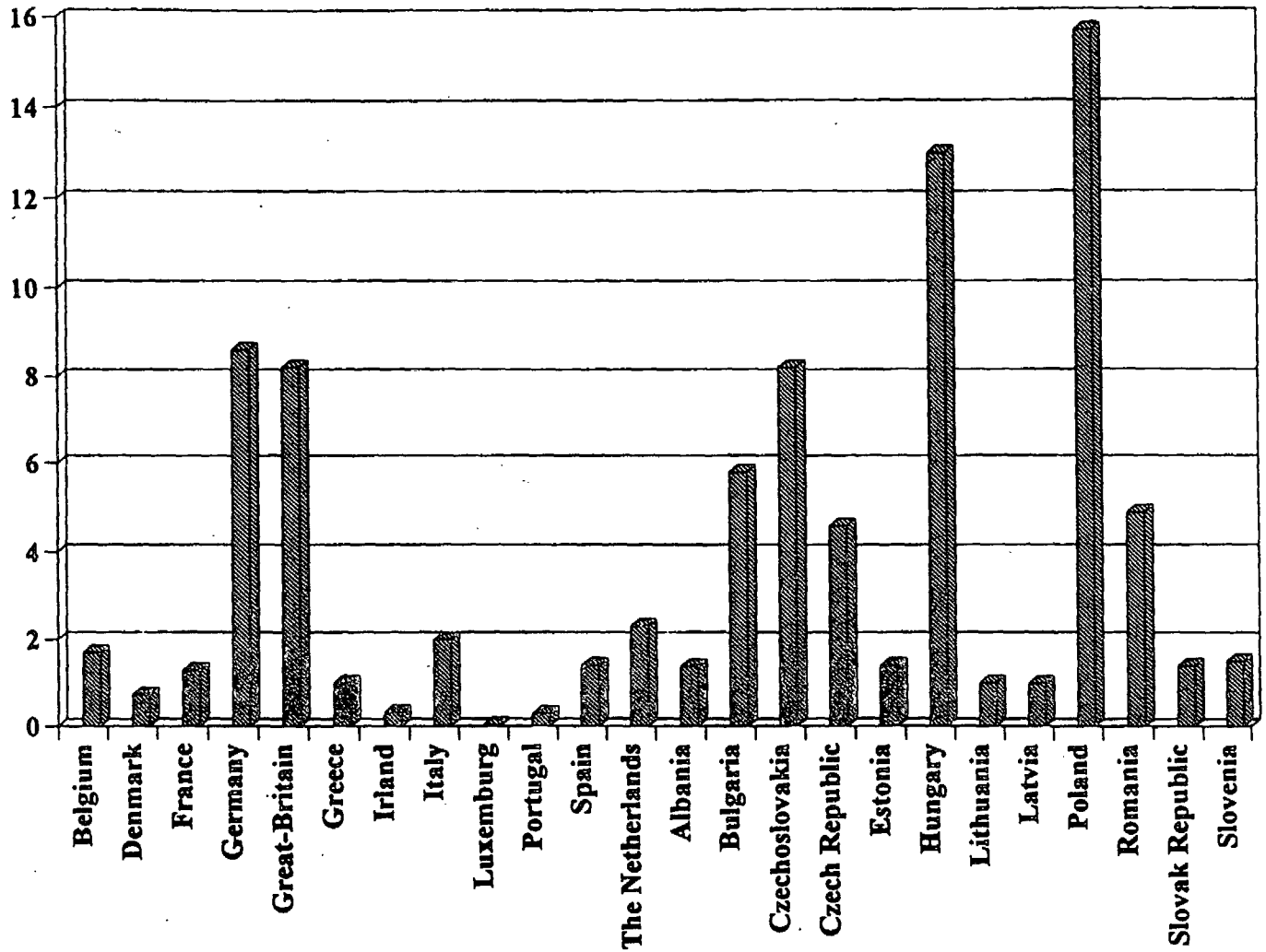
TABLE 4

20/07/94

Figure 3

## PECO/COPERNICUS 1992/93

Funded proposals, all actions, country breakdown for funding (in MECUs)



## Peco/Copernicus 1992/93
## Fellowships "Go West"; Country Breakdown

| From / to | Belgium | Germany | Denmark | Spain | France | Gr. Britain | Greece | Ireland | Italy | Luxemburg | Netherlands | Portugal | Others | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albania | 5 | 7 | 3 | 1 | 29 | 10 | 9 | 2 | 37 | 0 | 0 | 0 | 0 | 103 |
| Bulgaria | 36 | 88 | 5 | 17 | 63 | 90 | 16 | 7 | 34 | 0 | 32 | 3 | 0 | 391 |
| Czechoslovakia | 27 | 113 | 8 | 9 | 57 | 108 | 7 | 2 | 46 | 0 | 39 | 1 | 5 | 422 |
| Czech Rep. | 0 | 5 | 0 | 1 | 4 | 2 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 16 |
| Estonia | 1 | 20 | 4 | 1 | 5 | 10 | 0 | 0 | 3 | 0 | 4 | 0 | 1 | 49 |
| Croatia | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Hungary | 22 | 74 | 3 | 2 | 27 | 59 | 6 | 3 | 18 | 0 | 28 | 1 | 3 | 245 |
| Lithuania | 2 | 10 | 3 | 0 | 5 | 8 | 0 | 0 | 5 | 0 | 5 | 0 | 0 | 38 |
| Latvia | 2 | 11 | 3 | 1 | 2 | 4 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 26 |
| Poland | 42 | 166 | 15 | 18 | 116 | 129 | 6 | 5 | 49 | 0 | 50 | 2 | 9 | 606 |
| Rumania | 41 | 67 | 4 | 5 | 106 | 70 | 4 | 1 | 50 | 1 | 10 | 2 | 0 | 361 |
| Slovenia | 2 | 11 | 0 | 1 | 2 | 10 | 0 | 0 | 4 | 0 | 0 | 1 | 0 | 31 |
| Slovak Rep. | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 5 |
| Others | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 3 | 0 | 2 | 0 | 0 | 8 |
| TOTAL | 181 | 577 | 48 | 56 | 417 | 502 | 46 | 20 | 253 | 1 | 176 | 10 | 18 | 2305 |

TABLE 5

Figure 4

## PECO/COPERNICUS 1992/93
## Number of fellowships"GoWest"; per Country

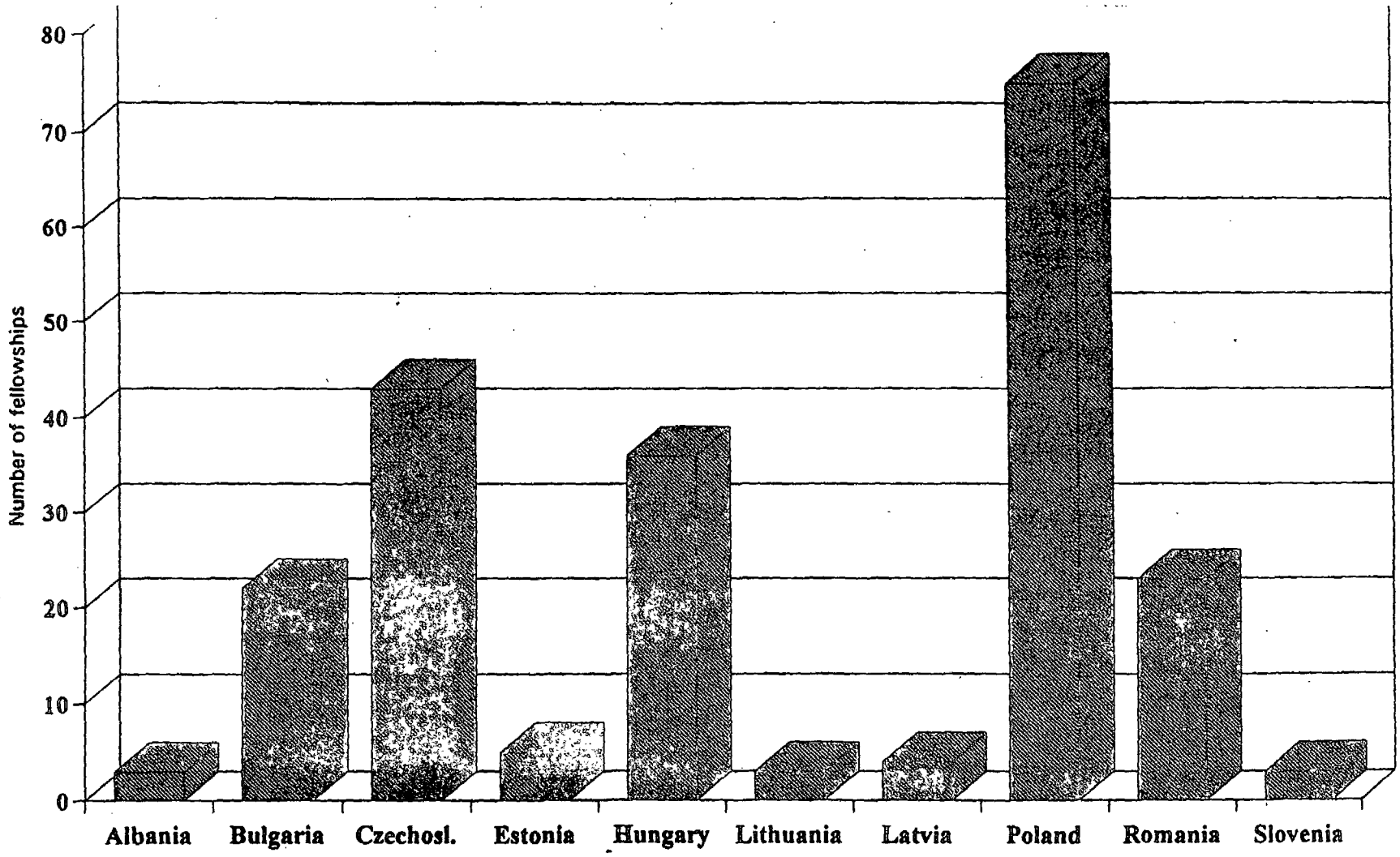
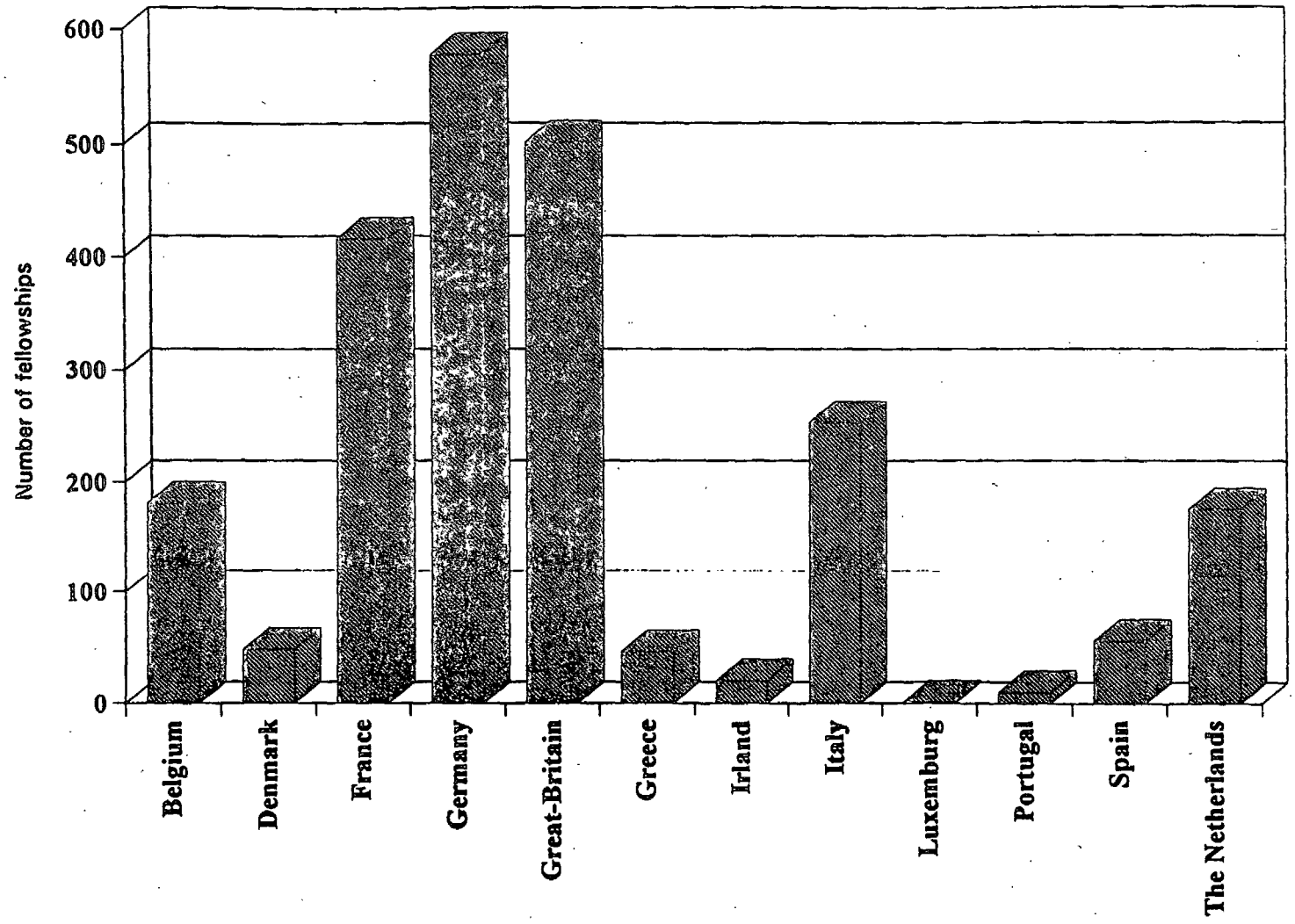


Figure 5

# PECO/COPERNICUS 1992/93
## Fellowships "Go West"; Country Breakdown



## PECO/COPERNICUS 1992/93

Mobility Scheme "Go East": country breakdown for fellowships

| from to | Albania | Bulgaria | Czechosl. | Czech Rep | Estonia | Croatia | Hungary | Lithuania | Latvia | Poland | Roumania | Slovenia | Slovak Rep | Others | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Belgium | 1 | 3 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 10 |
| Germany | 1 | 3 | 0 | 6 | 2 | 0 | 7 | 2 | 1 | 19 | 2 | 0 | 1 | 0 | 44 |
| Denmark | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| Spain | 0 | 1 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 7 |
| France | 0 | 4 | 1 | 5 | 1 | 0 | 4 | 0 | 1 | 17 | 10 | 0 | 0 | 0 | 43 |
| Gr. Britain | 0 | 4 | 0 | 10 | 0 | 0 | 13 | 0 | 0 | 12 | 3 | 2 | 4 | 0 | 48 |
| Greece | 1 | 4 | 0 | 4 | 0 | 0 | 3 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 16 |
| Ireland | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 6 |
| Italy | 0 | 3 | 0 | 5 | 0 | 0 | 3 | 1 | 1 | 12 | 3 | 1 | 0 | 0 | 29 |
| Luxemburg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Netherlands | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 1 | 4 | 1 | 0 | 1 | 0 | 11 |
| Portugal | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Others | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| TOTAL | 3 | 22 | 2 | 36 | 5 | 0 | 36 | 3 | 4 | 75 | 23 | 3 | 6 | 0 | 217 |

TABLE 6

Figure 6

# PECO/COPERNICUS 1992/93
## Fellowships "Go East"; Country Breakdown

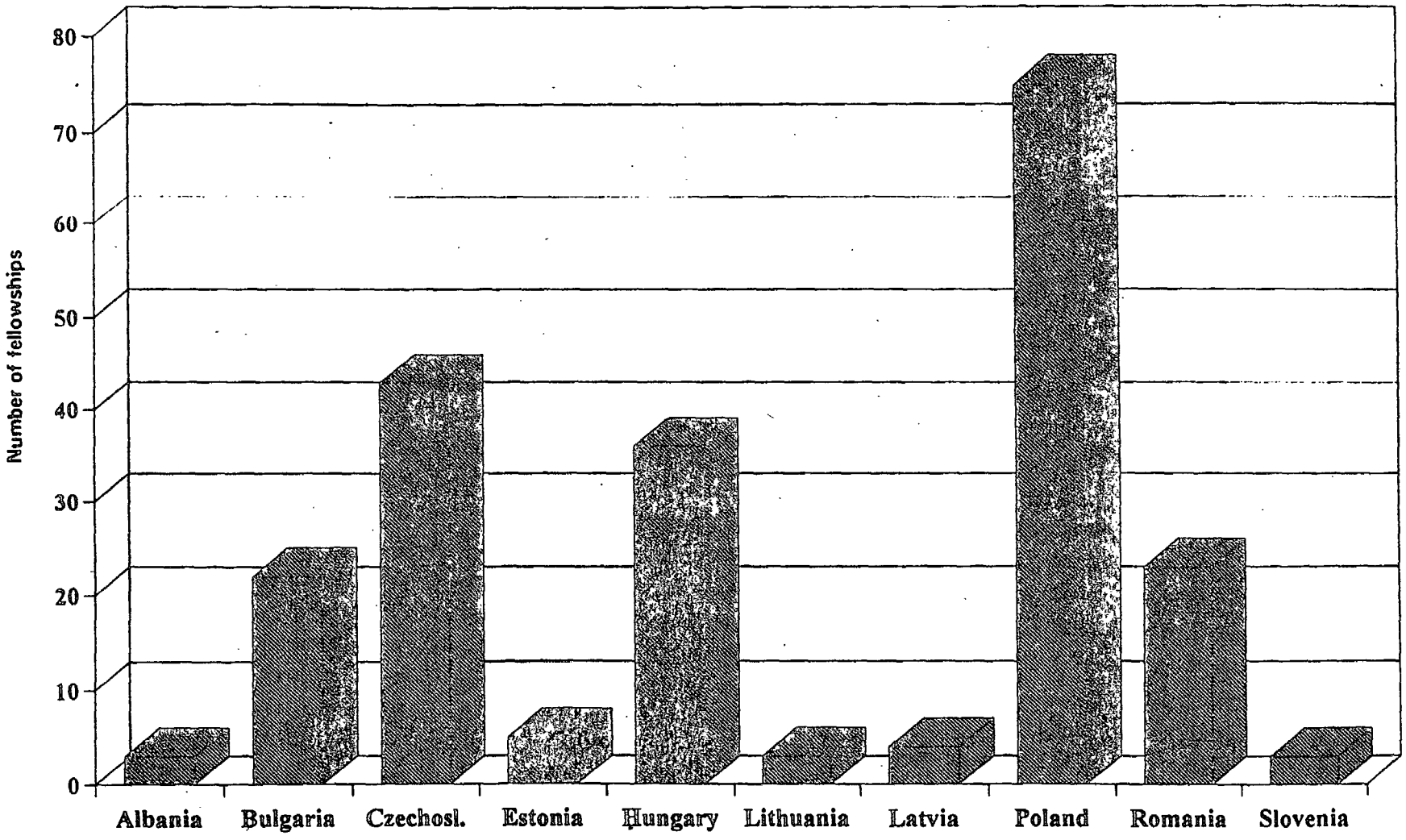


Figure 7

# PECO/COPERNICUS 1992/93
## Fellowships "Go East"; Country Breakdown

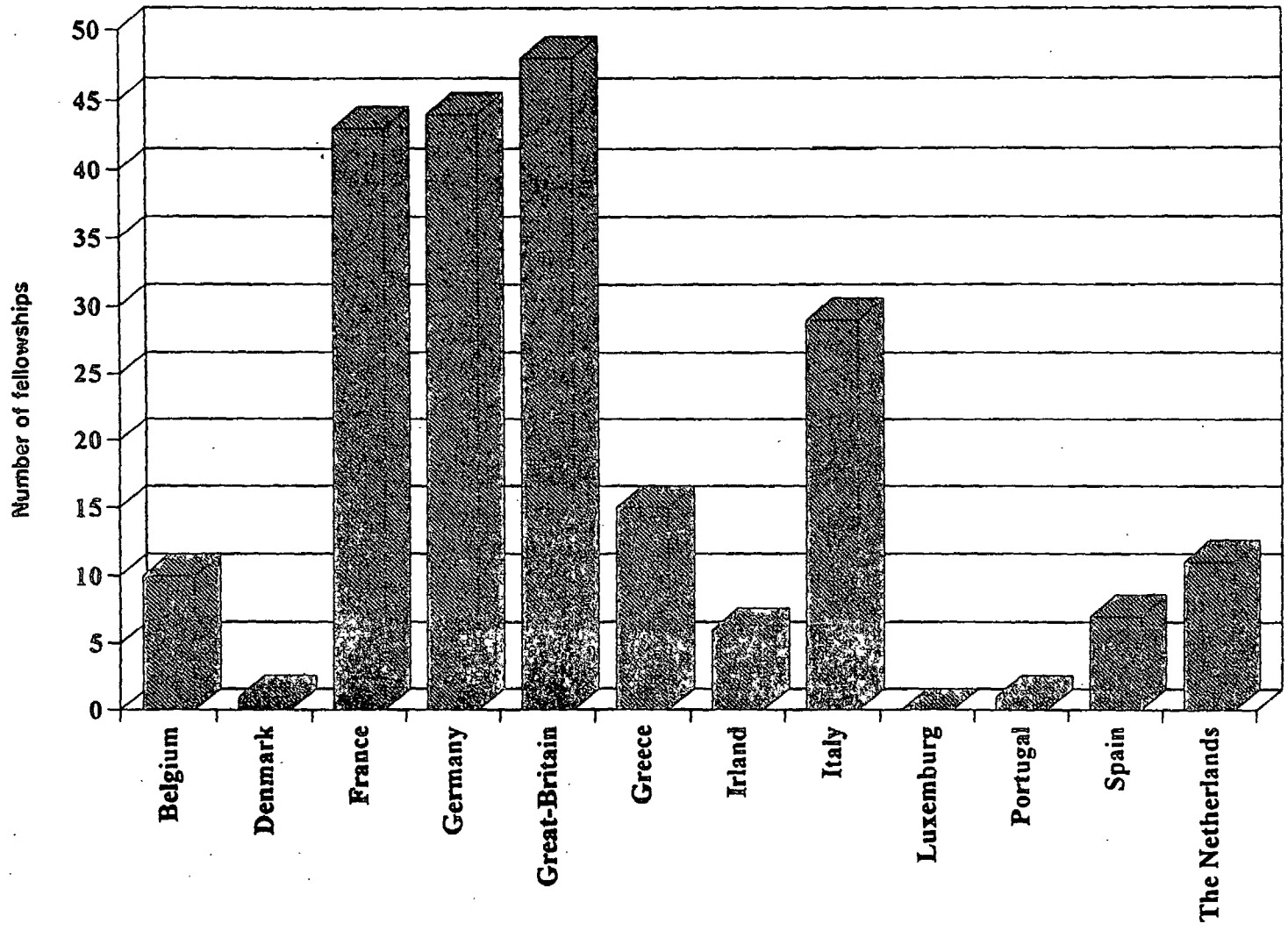


TABLE 7

## PARTICIPATION PECO 1993

**Received proposals per programme, number of proposals and requested funding**

| Programme | Number or proposals | Funding requested MECUs |
|---|---|---|
| Environment | 141 | 18 |
| Biomedical and Health Research | 139 | 18 |
| Non-nuclear Energy - Joule II | 98 | 16 |
| Nuclear fission safety | 59 | 6 |
| Human capital and mobility: | | |
| - Large Scale Facilities | 20 | 7 |
| - Networks | 172 | 25 |
| - Euroconferences | 24 | 2 |
| TOTAL | 653 | 94 |

TABLE 8

## PECO 1993

**Proposals funded 1993, amount per programme**

| Programme | MECUs |
|---|---|
| Environment | 4 |
| Biomedical and health research | 4 |
| JOULE II | 5 |
| Nuclear fission safety : | |
| - Radiation protection | 2 |
| - Reactor safety | 1 |
| - Teleman | |
| - Radioactive Waste | |
| Human capital and mobility : | |
| - Large scale facilities | - |
| - Networks | - |
| - Euroconferences | - |
| TOTAL | 16 |

* Under reserve for contract negotiations - Proposals concerning Human capital and mobility will be financed under the 1994 budget

TABLE 9

**PECO 1993**
**Proposals funded 1993, number of participants from Central and Eastern European countries***

| Country | Environment | Biomedical | JOULE II | Nuclear fission | TOTAL |
|---|---|---|---|---|---|
| Albania | 3 | 4 | 2 | 1 | 10 |
| Bulgaria | 14 | 14 | 16 | 3 | 47 |
| Czech Republic | 12 | 23 | 10 | 10 | 55 |
| Estonia | 10 | 9 | 4 | 3 | 26 |
| Hungary | 8 | 28 | 10 | 18 | 64 |
| Latvia | 4 | 12 | 4 | - | 20 |
| Lithuania | 2 | 14 | 3 | 2 | 21 |
| Poland | 15 | 29 | 8 | 15 | 67 |
| Romania | 10 | 20 | 33 | 7 | 70 |
| Slovak Republic | 8 | 16 | 10 | 2 | 36 |
| Slovenia | 7 | 14 | 6 | 5 | 32 |
| TOTAL | 93 | 183 | 106 | 66 | 448 |

* Under reserve for contract negotiations - Proposals concerning Human capital and mobility will be financed under the 1994 budget

Proposals funded 1993, number of participants from Central and Eastern European countries

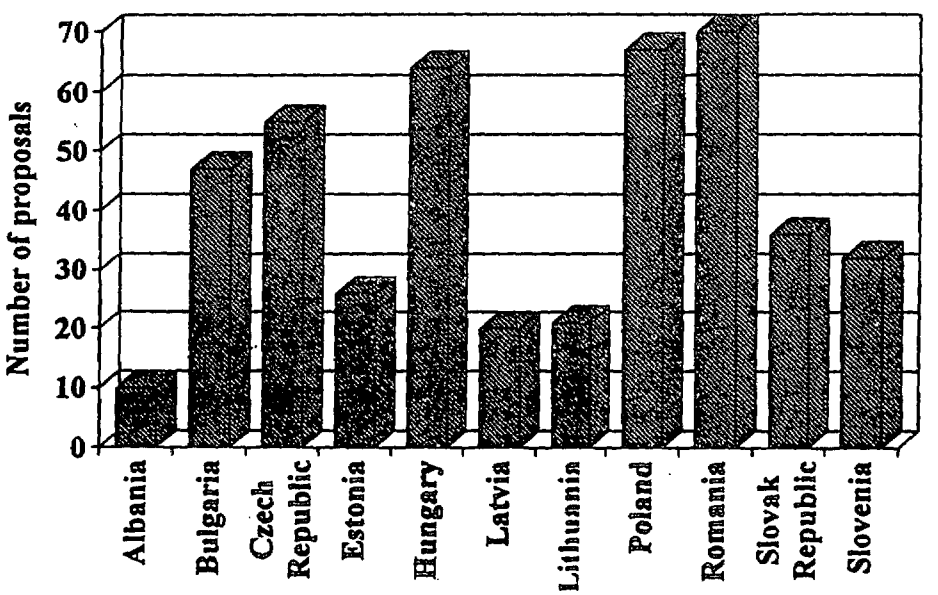


TABLE 10

## INTAS - 1993 CALL FOR PROPOSALS

### Breakdown by scientific field of selected proposals

| Scientific Field | Recommended proposals | | Recommended Funding | | Average Recommended Funding per Project |
|---|---|---|---|---|---|
| | Number | % | MECU | % | KECU |
| Physics, Astronomy, Astrophysics | 126 | 25 | 4 | 21 | 34 |
| Mathematics, Information Sciences | 56 | 11 | 2 | 10 | 38 |
| Chemistry | 79 | 16 | 2 | 11 | 29 |
| Life Sciences | 65 | 13 | 4 | 19 | 60 |
| Earth Sciences, Environment, Energy | 62 | 12 | 4 | 17 | 58 |
| Engineering Sciences, Aeronautics, Space | 56 | 11 | 2 | 11 | 41 |
| Economic, Social, Human Sciences | 63 | 12 | 2 | 11 | 36 |
| TOTAL | 507 | 100 | 20 | 100 | 41 |

COPERNICUS 94
SPREAD OF PROPOSALS BY SECTOR AND BY COUNTRY
20/07/94

| | MEMBER STATES | | | | | | | | | | | | PECO | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SECTOR | B | D | DK | E | F | GR | I | IRL | L | NL | P | UK | AL | BG | CZ | EE | HR | HU | LT | LV | PL | RO | SI | SK |
| 1 | 56 | 217 | 15 | 30 | 112 | 57 | 105 | 25 | 1 | 42 | 15 | 185 | 25 | 181 | 227 | 34 | 1 | 221 | 88 | 34 | 259 | 199 | 89 | 131 |
| 2 | 33 | 91 | 25 | 22 | 82 | 42 | 56 | 13 | 2 | 39 | 5 | 83 | 23 | 88 | 95 | 37 | 3 | 133 | 56 | 35 | 117 | 100 | 45 | 64 |
| 3 | 61 | 267 | 22 | 45 | 156 | 49 | 105 | 17 | 1 | 65 | 35 | 166 | 20 | 201 | 355 | 36 | 0 | 276 | 52 | 50 | 395 | 229 | 97 | 212 |
| 4 | 25 | 119 | 20 | 35 | 83 | 26 | 73 | 6 | 0 | 36 | 15 | 75 | 13 | 85 | 177 | 41 | 3 | 120 | 38 | 24 | 140 | 88 | 42 | 100 |
| 5 | 20 | 84 | 4 | 15 | 37 | 12 | 19 | 5 | 0 | 26 | 8 | 46 | 7 | 55 | 59 | 13 | 0 | 114 | 22 | 12 | 92 | 20 | 20 | 33 |
| 6 | 11 | 30 | 8 | 14 | 41 | 17 | 34 | 6 | 0 | 30 | 0 | 31 | 4 | 37 | 68 | 22 | 1 | 72 | 12 | 13 | 31 | 20 | 17 | 35 |
| rand total | 207 | 787 | 94 | 161 | 511 | 203 | 392 | 72 | 4 | 238 | 78 | 586 | 92 | 647 | 981 | 183 | 8 | 936 | 268 | 168 | 1034 | 656 | 310 | 575 |
| % | 2,11 | 7,94 | 0,96 | 1,64 | 5,22 | 2,07 | 4,00 | 0,74 | 0,04 | 2,43 | 0,80 | 5,99 | 0,94 | 6,61 | 10,02 | 1,87 | 0,08 | 9,56 | 2,74 | 1,72 | 10,56 | 6,70 | 3,17 | 5,87 |

| | |
|---|---|
| SECTOR 1 | INFORMATION TECHNOLOGY |
| SECTOR 2 | COMMUNICATION TECHNOLOGIES, TELEMATICS AND LANGUAGE ENGINEERING |
| SECTOR 3 | MANUFACTURING, PRODUCTION, PROCESSING, MATERIALS |
| SECTOR 4 | MEASURMENT AND TESTING |
| SECTOR 5 | AGRO-AND FOOD INDUSTRIES |
| SECTOR 6 | BIOTECHNOLOGY |

| | NIS | | | | | | | | | | EFTA | | | | | OTHER | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AM | AZ | BY | GE | KZ | MD | MT | RU | UA | UZ | A | CH | N | S | SF | X | YU | CA | ISR | Grand total |
| 2 | 0 | 13 | 3 | 1 | 3 | 0 | 84 | 23 | 1 | 7 | 7 | 3 | 4 | 9 | 1 | 0 | 0 | 0 | 2510 |
| 2 | 0 | 6 | 0 | 1 | 4 | 1 | 57 | 15 | 0 | 8 | 4 | 3 | 18 | 6 | 1 | 1 | 1 | 0 | 1407 |
| 2 | 0 | 9 | 2 | 2 | 2 | 0 | 87 | 28 | 0 | 7 | 2 | 1 | 1 | 5 | 0 | 0 | 0 | 0 | 3060 |
| 3 | 1 | 5 | 3 | 0 | 3 | 0 | 59 | 18 | 0 | 9 | 5 | 1 | 3 | 4 | 0 | 1 | 0 | 2 | 1501 |
| 0 | 0 | 3 | 0 | 1 | 1 | 0 | 11 | 1 | 0 | 4 | 2 | 1 | 10 | 2 | 0 | 0 | 0 | 0 | 729 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 3 | 0 | 1 | 1 | 1 | 3 | 2 | 0 | 0 | 0 | 0 | 561 |
| 9 | 1 | 36 | 8 | 5 | 13 | 1 | 314 | 88 | 1 | 36 | 21 | 10 | 39 | 28 | 2 | 2 | 1 | 2 | 9788 |
| 0,09 | 0,01 | 0,37 | 0,08 | 0,05 | 0,13 | 0,01 | 3,21 | 0,90 | 0,01 | 0,37 | 0,21 | 0,10 | 0,40 | 0,29 | 0,02 | 0,02 | 0,01 | 0,02 | 100,00% |

TABLE 11

# Copernicus 1994 proposals
## distribution of participants

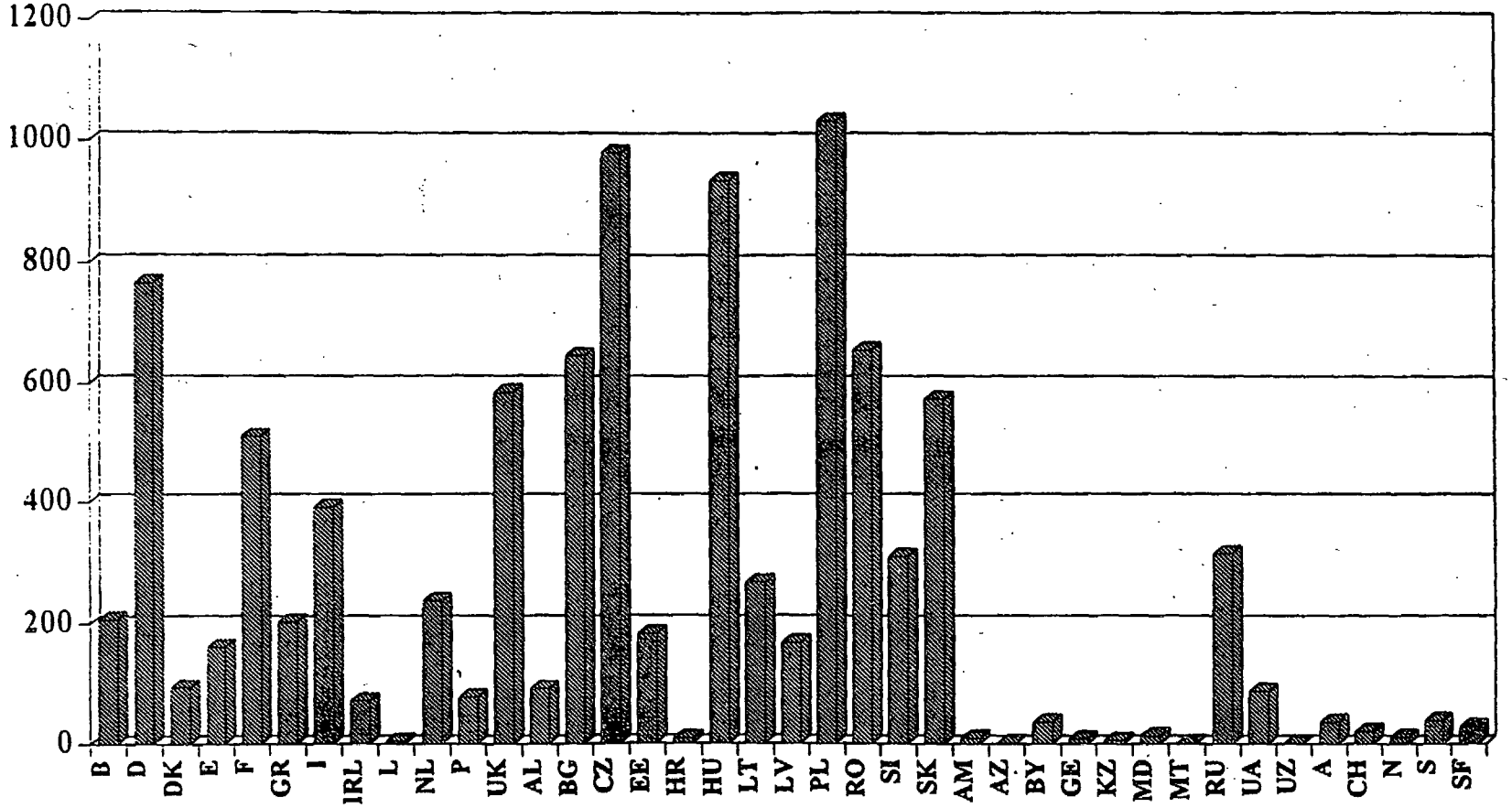



FIGURE 6



5/07/94

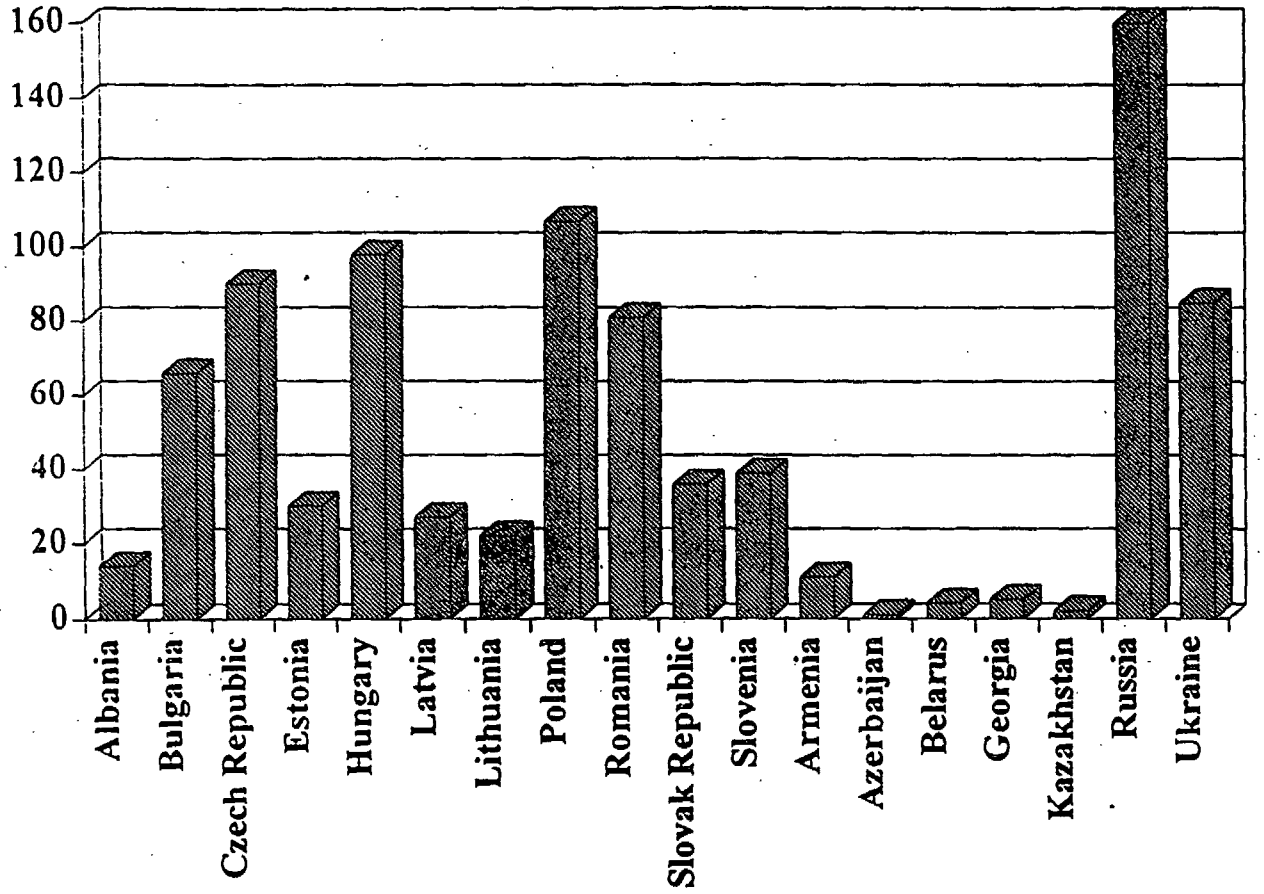
## 1994 PARTICIPATION IN THE FRAMEWORK PROGRAMME

## NUMBER OF APPLICATIONS & FUNDING REQUESTED BY PROGRAMME

| | N° of proposals | Total Fund Requested ( MECU ) |
|---|---|---|
| BIOMEDICINE | | |
| Biomedical and Health Research | 171 | 19 |
| Human Genome | 11 | 2 |
| ENVIRONMENT | | |
| Environment | 34 | 4 |
| HUMAN CAPITAL AND MOBILITY | | |
| Euroconferences | 34 | 1 |
| Large Scale Facilities | 21 | 5 |
| Networks | 151 | 20 |
| NON-NUCLEAR ENERGY - JOULE II | | |
| Non-Nuclear Energy-Joule II | 31 | 5 |
| NUCLEAR FISSION SAFETY | | |
| Decommissioning | 0 | 0 |
| Radiation Protection | 4 | 0.7 |
| Radioactive Waste | 0 | 0 |
| Reactor Safety | 0 | 0 |
| Telematics | 3 | 0.3 |
| TOTAL | 460 | 57 |

PECOTOT.XLC

# Participation in the Framework Programme
## 1994
## N° of applications



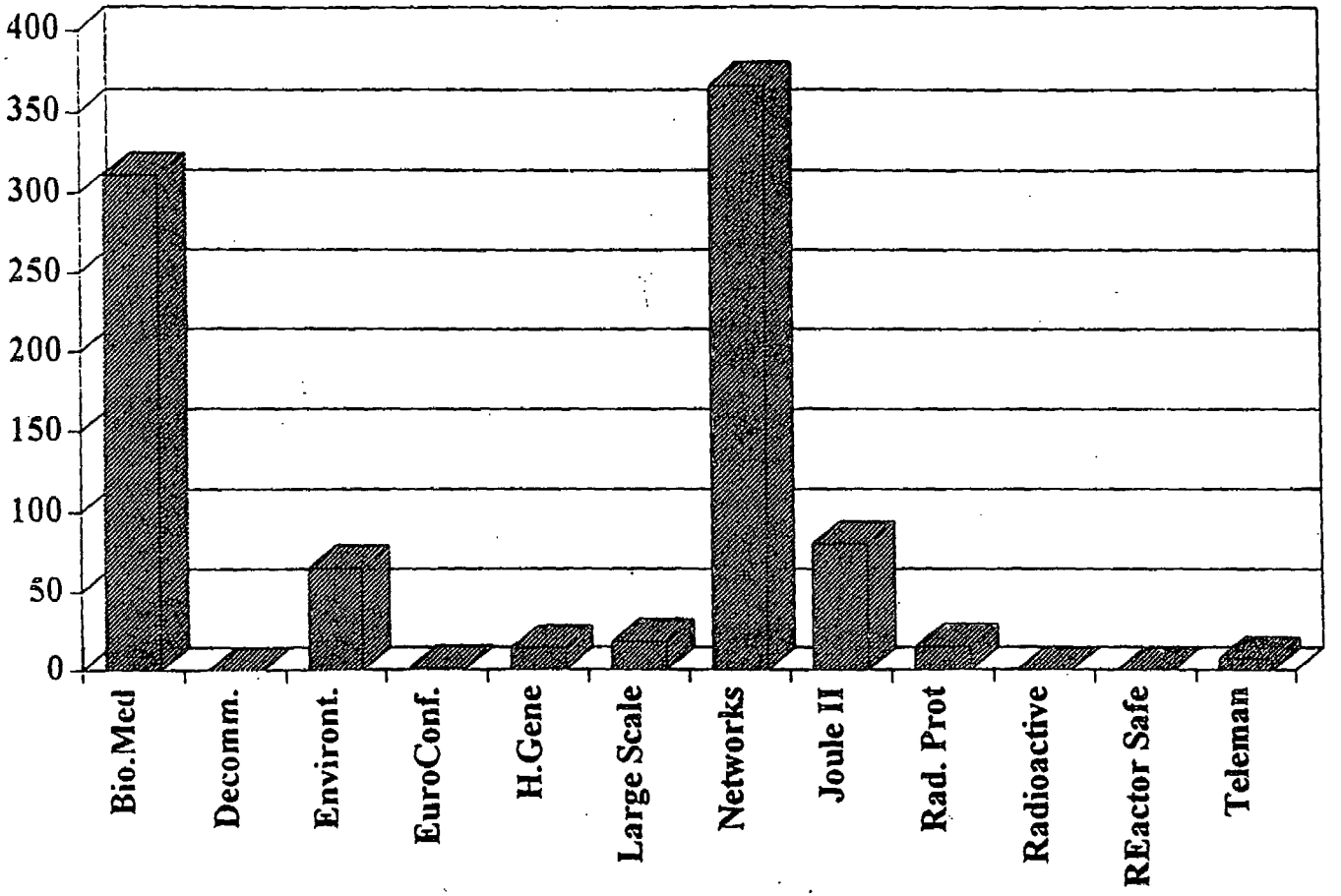

-15-

20/07/94

FIGURE 10

PECOTOT2.XLC

# Participation in the Framework Programme
## 1994
## N° of applications






5/07/94

FIGURE 11

TABLE 13

## INTAS - 1994 CALL FOR PROPOSALS

### Breakdown by scientific field of selected declarations of intent

| Scientific Field | Recommended project | | Recommended funding | | |
|---|---|---|---|---|---|
| | Number | % of total received | ECU (total) | % of budget available | Average per project (ECU, rounded to 1,000 ECU) |
| Physics, Astronomy, Astrophysics | 109 | 10.81 | 4 | 20.77 | 39,000 |
| Mathematics, Telecommunication, Information Technologies | 39 | 9.77 | 2 | 9.06 | 48,000 |
| Chemistry | 41 | 7.89 | 2 | 10.98 | 55,000 |
| Life Sciences | 92 | 10.76 | 3 | 16.72 | 38,000 |
| Earth Sciences, Environment, Energy | 74 | 8.56 | 4 | 19.24 | 53,000 |
| Engineering Sciences, Aeronautics, Space | 68 | 13.26 | 3 | 13.40 | 41,000 |
| Economics, Social, Human Sciences | 43 | 9.56 | 2 | 9.83 | 47,000 |
| **TOTAL (MECU)** | **466** | **10.56** | **20** | **100.00** | **44,000** |

ANNEX 2

# FIRST ANALYSIS OF REPORTS TO THE COMMISSION ON THE MOBILITY ACTIONS (COPERNICUS)

At the conclusion of each project, a final scientific report has to be sent to the Commission. Such reports already exist for a substantial part of the mobility actions that have been granted support by the Commission; the other and longer projects have not yet reached the final reporting stage.

In all, about one hundred of the reports on the mobility actions have been analysed. No specific form for the reports was prescribed. About a third of them are exclusively scientific in their content, i.e. they describe, often in the form of a paper, without any further comments the scientific work that has been done, the scientific results etc. Two thirds of the reports contain comments that permit some observations concerning the effects of the grants that have been given. These comments represent the opinions of the host institutions as well as those of the visitors.

The comments are almost exclusively positive concerning the visits as such. They often describe the good personal and professional contacts that have been established, sometimes in terms such as "extremely fruitful", "extremely successful", "very stimulating" etc. Of special interest are those reports that more explicitly explain the reasons for such and other positive qualifications.

To a great extent, it seems from these descriptions that the collaboration during the visit has been of genuine interest to both parties, to host as well as to guest. Not seldom, it is stated that the work during the visit has led to new results of scientific interest. In as much as about a fifth of all reports, the possibilities are discussed of continued and intensified cooperation between host institution and guest institution as a result of the visit. In a few cases this represents perhaps no more than a general wish, in some other cases the wish is firmly expressed, but also the lack of funds to finance a continuation. But the majority of those who express this view state quite unequivocally their intention to expand the cooperation in one form or another.

In at least two cases the project is shown to have resulted in a formal agreement between institutions on scientific and technological collaboration. An agreement between a Polish and a Belgian university specifies the forms of collaboration in the field of acousto-optics, including the publication of common papers and a continued exchange of researchers. Another agreement, in the field of fracture mechanics and composite materials, has been signed between a German and a Latvian university department on co-operation in research activities. A third case is said to have resulted in an enlargement of a current agreement. In another example, the visit of a Bulgarian cell biologist to a French research institution is said to have provided extremely interesting results on the role of macrophages in encephalomyelitis, which will necessitate intensified cooperation between the two partners. The work of a Slovak scientist during a visit to a Scottish university department of psychology has been part of a whole range of activities, including the preparation of a transnational European study (to be carried out in Hungary, Slovakia, the Czech Republic, France and the United Kingdom) that has obtained a research grant from the British Economic and Social Research Council.

Mostly the discussion concerns scientific cooperation, without mentioning the effects this cooperation undoubtedly will have also on education, but there are a few exceptions. The visit to Germany of a mathematics teacher from an Estonian university is said not only to have produced new scientific results but also to have given useful input for the reorganization of university education in Estonia. In another

example, collaboration between two university departments in Romania and Belgium has resulted not only in the elaboration of a common study course within the field of materials science but also, subsequently, in the joint preparation of a common text book.

As another effect outside the purely scientific context, the work of an Estonian scientist at a Spanish teaching hospital (which is also expected to continue as further scientific collaboration) is described as having given valuable practical suggestions on improving medication of patients.

To a large extent, the visits as such have resulted in joint papers by guest and co-authors from the host institution, some still at the stage of preparation or submission but others already accepted and printed. In many cases the result has also been joint presentations at conferences, symposia etc.

Very rarely, the reports indicate difficulties that have been encountered. Of the only two examples found, one is in an otherwise positive report from a psychologist who spent three months in the Netherlands in a team for child treatment; she describes the linguistic and cultural difficulties that had to be overcome. A professor in one of the Member States describes as initially very time-consuming ( but also finally successful) the work to overcome the differences in scientific approach between the hosts and their guests. If such difficulties have been common, they are not mirrored in the reports.

In conclusion, the simple analysis undertaken of a limited number - about one hundred - of the final reports indicates that a substantial part of the visits have had not only a temporary effect but also created and/or strengthened the basis for continued collaboration between scientific partners in Central and Eastern European countries and in Community Member States.

For each host country in the Community, one organization has been appointed to ensure scientific and administrative follow-up of the "Go West" fellowships. A survey has ben carried out to this end, and questionnaires sent to all fellowship holders and their academic supervisors in the host laboratory asking for their experience and opinion of these fellowships in terms of scientific results, plans for future cooperation and administrative and practical matters. The first results of this survey will be available in the autumn of 1994.

# EXAMPLES OF FUNDED PROPOSALS RELATED TO THE OBJECTIVES OF THE PROGRAMME

As an illustration of the possible character and scope of different projects funded by the programme, some examples are given in the following. They are broadly related to the objectives and priorities that were defined for the programme, and the short descriptions are all based on the applications received by the Commission (some changes and/or limitations may therefore have been made at a later stage). They do not cover all the subjects or all the countries involved, and they should be seen merely as examples of the type of collaboration that is supported within the programme.

## Projects proposed 1992

The main priorities set in the 1992 call for proposals concerned human resources, industrial rehabilitation, and quality of life (environment and health).

### Human resources

Balkan network/Scientific cooperation and exchange of social and political research in the Balkans (proposal No 10612, EU funding 50 000 ECU)

The aim of the project[1] was to form and develop a European-Balkan network between scientific institutions and individual researchers in the area of social sciences, to transfer and exchange knowledge between the EC countries and the countries of Central and Eastern Europe, and to create an infrastructure for the aggregation, organisation and analysis of socioeconomic and political data.

The project will contribute to the development of human resources in the Balkan countries by strengthening the research and development capacity in the social field.

Concepts of efficiency and psychological profiles of managers and managed at work (proposal No 7800, EU funding 200 000 ECU)

The project[2] will investigate concepts of good and poor work performance in countries accustomed to centralised "command" economies, compared with corresponding concepts in market economies, and the psychological profile of managers and workforce now undergoing rapid "marketisation". On this basis, programs will be instituted to identify managerial talent within the workforce as a whole.

The project will introduce the eastern European countries to the methods of effective scientific personnel selection. It will also serve as a catalyst to starting a program of training in the techniques of occupational psychology.

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1 Proposed by a Greek coordinator together with partners from Greece, Italy, France, Germany, Bulgaria, Hungary, Romania and Albania.

2 Proposed by partners in United Kingdom, Czechoslovakia (now the Czech Republic) and Lithuania.

**Industrial rehabilitation**

The future of industry in central and eastern Europe (proposal No 5184, EU funding 250 000 ECU)

The overall aim of the project[3] is to explore and assess the major strategic issues relevant to the development and transformation of industry in central and eastern Europe in the next ten to fifteen years. More precisely, the specific conditions of industry and the transformation potential in the principal industrial sectors and regions in Hungary, Poland, the Czech and Slovak Republics, Bulgaria and Lithuania will be identified and assessed.

The results of the project may have a strategic role in decision-making in enterprises and in public sector policy in the field. The project will enable partners from central and eastern Europe to benefit from the research and collaborative experience of the EC MONITOR/FAST programme on the future of industry in Europe. Cooperation is foreseen with relevant research institutes in the PECO countries, OECD, World Bank etc.

A general method for making industrial policy choices between liquidation, restructuring and privatisation in the countries of Central and Eastern Europe (proposal No 5315, EU funding 200 000 ECU)

There is no methodological instrument in the present theory to help decision-makers solve the complex and pressing problems connected with the choice between different options during industrial transformation. The project[4] aims at developing such an instrument, as rational as possible but also simple, flexible and coherent.

The results of the project will be of immediate use to decision-makers in enterprises and in the public sector.

Information processing for active computer integrated manufacturing (CIM) subsystem (proposal No 5855, EU funding 150 000 ECU)

The reconstruction and modernisation of Central and Eastern Europe's manufacturing facilities is an essential preliminary to future co-operation. New and next-generation fabrication technologies are to be developed in a joint approach.

This project[5] aims at a new approach to visual information processing by an intelligent robot as part of Computer Integrated Manufacturing processes. The robot orientation is defined in three-dimensional space and a robot position estimation and scene understanding is included.

As a very high computational complexity is required for these tasks, both artificial intelligence methods

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3 Proposed by a German coordinator together with partners in Ireland, Hungary, Poland, Bulgaria and Lithuania.

4 Proposed by partners in France, Belgium, Poland and Romania.

5 Proposed by partners in Czechoslovakia (now the Czech Republic) and Germany.

and parallel optimisation algorithms are to be applied.

Extension of EUROCHIP services to central and Eastern europe: design of microelectronics (proposal No 9093, EU funding 325 000 ECU)

Europe's industry lacks engineers and researchers for the design of microelectronics systems and in particular of very large scale integrated circuits (VLSI).

A specific network of 300 western European universities was established to form a joint academic training and design system and to provide the necessary services.

This system, known as EUROCHIP, will be extended and opened to academic and research institutes of Central and Eastern Europe. Four organisations in Slovakia, Poland and Romania will be facilitated in the pilot activity with the necessary equipment, software and routes to manufacturing.

**Environment**

Catalytic and adsorption processes for environmental pollution control (proposal No 2872, EU funding 125 000 ECU)

It was proposed[6] - with the aim of establishing contacts among active research groups from Central and Eastern Europe and their EU counterparts, and of preparing future joint projects - to develop a network for the study of air pollution by car exhausts, NOx from coal-fired electric power plants and various waste gases containing volatile organic compounds from different industrial sources. Beginning with two active research groups from Czechoslovakia, the network should be expanded from 1993 onwards with groups from other central and eastern European countries . The network would give the groups access to current methodology, research results, technical solutions, literature etc. Common research projects would be prepared.

A special session of the CHISA congress (the largest meeting of chemical engineers in central and eastern Europe) in Prague 1993 was to be organised on the theme of the network. The results of the cooperation should be made available to engineering construction companies, government regulatory bodies and potential industrial users via a workshop in Prague in 1995.

Among the most pressing environmental problems in central and eastern Europe are those connected with air pollution. The project will contribute to the utilisation in these countries of the most efficient abatement techniques currently under use and further development.

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6 By a German coordinator together with partners from Czechoslovakia (now the Czech Republic), Spain, Italy, The Netherlands and Germany.

The influence of different air pollution levels on the degree of forest soil acidification and forest stability (proposal No 6005, EU funding 400 000 ECU)

The overall aim of the project[7] is to get insight into the deposition and element-cycling determined vitality of forest ecosystems. This will be done along an air pollution gradient from central Europe (the Czech Republic) through eastern Europe (Poland) to northern Europe (Denmark) by establishing research plots (investigation sites) linking geographically and technically the research activities in central and eastern Europe with research in Scandinavia.

The background to the project is the increased concern about the vitality of forests and sustained forest production. The results of the project will contribute to the basis for environmental and economic policy. In addition, relevant technology will be transferred to central and eastern European countries together with necessary training.

**Biomedicine and health**

Cell biology and $Ca^{2+}$ homeostasis (proposal No 6660, EU funding 300 000 ECU)

The aim of the proposal[8] was to coordinate the work of a number of laboratories from both western and eastern Europe, specialised in specific subareas of research on $Ca^{2+}$ ions.

The project will contribute to fundamental biological science and further integration of different experimental approaches. The role of $Ca^{2+}$ in the structures and mechanisms of the cell is also important in various types of pathology. One of the fields where the project is expected to give specific results concerns the cellular and molecular processes of atherosclerotic plaque formation.

Role of excitatory amino acids (EEAs) in neuroendocrine regulation and in the patho-mechanism of brain damage (proposal No 4137, EU funding 200 000 ECU)

The participating laboratories have already embarked on pilot studies on the role of EEA neurotransmission. One aim of the project[9] is to bring together various European laboratories engaged in research on neuroendocrine control in order to help elucidate the role played by EEA-containing afferent fibres in neuroendocrine regulation.

The project will promote endocrine research in the Czech and Slovak Republics and Hungary by providing access to new research techniques of cell and molecular biology and new neuroendocrine techniques. The area of research fits well in the recently launched Community activity "European decade of brain research" and has a considerable potential for socioeconomic impact.

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7 Proposed by a Danish coordinator together with partners in Denmark, Poland and Czechoslovakia (now the Czech Republic).

8 Proposed by partners from Italy, France, Germany, United Kingdom, Spain, Poland, Romania, Hungary and Czechoslovakia (now the Czech Republic).

9 Proposed by partners from France, the Czech republic, the Slovak republic, Hungary and United Kingdom.

[redacted]

**Projects proposed 1993**

In 1993, existing projects and networks under five Community research programmes were opened for additional participation from central and eastern European countries: Environment, Biomedical and health research, Non-nuclear energy - JOULE II, Nuclear fission safety and Human capital and mobility. Of these, proposals concerning Human capital and mobility will be financed under the 1994 budget.

**Environment**

The Baltic drainage basin project (proposal No 0005, EU funding for the extension: 95 000 ECU).

The aim of the original project[10] was to develop ecological-economic models of complex dynamic systems encompassing both natural and social components, and more specifically to promote the understanding of the eutrophication process of the Baltic sea and to identify socially acceptable scenarios for the effective control of this process. The results will, among other things, help to assess the adequacy and cost-effectiveness of the "Joint comprehensive action programme" currently constructed by the Helsinki Commission on the protection of the Baltic marine environment. They will also provide environmental policy makers with a clear picture of relationships between different priorities.

The four new partner countries account for a third of the Baltic drainage basin area, almost 60 % of its population and for roughly a half of the discharges into the sea. Their involvement is crucial for the comprehensiveness of the project, as well as for the successful recovery of the Baltic Sea ecosystems.

MEDALUS II: Project 4, Research and policy interfacing in selected regions (proposal No 0010, EU funding for the extension: 125 000 ECU)

The MEDALUS project[11] is designed to provide a sound working knowledge of the ecological and soil systems and their interactions both on- and off-site in the European Mediterranean in order to assist in the formation of future policy and strategies to accommodate desertification trends.

The possible impacts of global warming are expected to extend the effects of semi-aridity beyond Mediterranean areas and to south-eastern Europe. The great plain of Hungary is a transitional area between Mediterranean and continental climates, which is also undergoing aridification. The intention is to link the work on these trends in south-east Europe with that being undertaken with MEDALUS II Project 4, whose primary objective is to interface science and policy making for desertification mitigation in specially selected areas.

The combined effect of physical and socio-economic pressures pose a potential threat to national productivity in the affected areas. The results of the project are expected to be used for land management planning and the development of regional agricultural strategy.

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10 Established in 1992 by partners in United Kingdom (coordinator), Germany and Sweden - will be extended to include partners from Estonia, Latvia, Lithuania and Poland.

11 Established by partners in Belgium, France, Greece, Italy, Netherlands, Portugal, Spain and United Kingdom - will be extended to include a Hungarian partner.

[redacted]

Non-nuclear energy - JOULE II

Concerted action on PV systems technology and coordination of PV systems development (proposal No 2029, EU funding for the extension: 200 000 ECU)

The objective of the ongoing project[12] is to coordinate and control all photovoltaic (PV) or solar cell system projects in JOULE II, and to carry out various technology development tasks. The work of the three Romanian groups will contribute to the latter task. The added key achievements expected are:

- the development of a hybrid (solar/wind) energy plant for small remote houses, in an ultra low-power range that does not exist in the EC;
- the development of a prototype - of a type that will be the first in Europe - of a combined PV/thermal system which will provide small electrical energy and warm water needs in remote areas; and
- the development of an expert system - the first in Europe and overseas - for performance analysis and diagnosis of PV plants.

The results of the project will contribute to an important improvement of the quality of life in remote areas in Romania, at the same time as they will have a high potential for further R & D and commercial exploitation within Europe and for developing countries.

12 Established by partners in Germany (coordinator), Italy and Ireland - will be extended to include three different partners from Romania.

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