



SCIENCE
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RTD INFO

News Roundup on EC Research and Technological Development Programmes

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PRELIMINARY GUIDELINES FOR THE 5TH FRAMEWORK PROGRAMME

For European research which meets citizens' needs

The debate on the 5th Framework Programme is open. On 10 July this year, the Commission adopted a discussion paper entitled "Inventing Tomorrow: Europe's research at the service of its people". Drawn up on the initiative of Mrs Edith Cresson, this defines the principal guidelines for the 5th Framework Programme for Research and Technological Development (RTD), which takes over from the current 4th Framework Programme in 1999.

The Member States, consultative bodies and principal research or-

ganisations are also submitting their recommendations as the Commission gets down to the task of drafting a more detailed working document. The Commission is expected to submit a formal proposal by mid-1997.

One of the key messages in the document⁽¹⁾ adopted by the Commission and submitted to the Council and Parliament is that if European research is to be useful and effective it must better address people's everyday concerns, have a positive impact on competitiveness and employment, and push back the frontiers of knowledge in a number of key areas. ►



Mrs Edith Cresson, member of the Commission responsible for research, education and training
"Europe needs research and research needs Europe, but if European research is to continue to exist, its objectives must be clearer, its practice must be simpler, and its results must be of more use to the general public."
(10 July 1996)

PRELIMINARY GUIDELINES FOR THE 5TH FRAMEWORK PROGRAMME

MEETING THE CHALLENGES OF NEW MARKETS

While stressing the progress made with the 4th RTD Framework Programme in terms of European research policy, the Commission considers it would be inappropriate simply to extend it. The challenges awaiting Europe at the dawning of the new millennium call for innovation and conciseness in the setting of priorities and the organisation of research. If Europe wishes to reverse the unemployment trend on a lasting basis and face up successfully to outside competition, it will have to harness the technologies needed for tomorrow's markets as quickly as possible.

Examples of the areas concerned are *biotechnology*, where the market is estimated to be worth less than ECU 10 billion in 1996 but is expected to grow to ECU 40-80 billion by the year 2000; *health care; environmental protection*, particularly water management, where the market in Europe will amount to ECU 30 billion in the year 2000; and technologies ensuring greater *mobility* (the cost of traffic jams, accidents, and damage to health and the environment is put at ECU 250 billion a year in the European Union). But the Commission document makes it quite clear that this does not mean there is no longer any need for so-called "fundamental" research - quite the contrary, in fact.

TACKLING THE MAIN PRIORITIES

The Commission guidelines also advocate a greater focusing of research efforts on a deliberately limited set of priorities which address societal problems affecting people's everyday lives, namely:

- unlocking the resources of the living world and the ecosystem
- creating a user-friendly information society
- promoting competitive and sustainable growth
- improving human potential
- innovation and participation of SMEs
- confirming the international role of European research.

THE NEED FOR EFFICIENT MANAGEMENT

In implementing these priorities, substantial improvements need to be made in the management of research programmes (see also the article on p.3). The Commission first of all intends to ensure greater flexibility in carrying out tasks and in the decision-making process, entailing a streamlining of procedures.

At the Intergovernmental Conference, for example, the Commission will advocate a simplified decision-making procedure with qualified majority voting for the framework programme and the specific programmes.

It also proposes that the number of *programmes* and the number of *committees* which assist it in the implementation of the RTD programmes be *reduced*. In the event of an emergency, as recently with mad cow disease, it has to be possible to adapt programmes to speedily regroup various research projects.

Another stated aim is to *reduce the time* needed when selecting proposals, concluding contracts and making payments to participants - a matter of particular importance for SMEs and grant-aided researchers.

Lastly, the Commission proposes that the existing programmes, which generally consist of a succession of projects planned in the medium term, should be supplemented by other *more flexible instruments*, e.g. strategic projects implemented through task forces modelled on the research/industry task forces set up a year ago, or supplementary research programmes involving a few Member States interested in a given topic, as provided for in Article 130k of the Treaty. Instruments of this kind would ensure *greater coordination* between European and national research activities. ■

(1) Copies of this document may be obtained from DG XII Communication Unit
Fax +32-2-295.8220

The 4th Framework Programme at mid-term

The 4th Framework Programme for RTD covering the period 1994-1998 has been running for 18 months and is proving extremely popular: in 1995, over 20,000 proposals were received, resulting in just under 3,000 projects involving over 10,000 participants. It is observed that the size of the projects is tending to increase,

with generally more participants from more Member States. The "turnover rate" is also increasing: for 37% of participants it is the first experience of Community RTD, of which 40% are SMEs.

One area of concern is the constant increase in the number of proposals not accepted: typically, only one in six

receives funding. These preliminary figures clearly indicate a need for better targeting of calls for proposals and for greater focusing to both avoid spreading resources too thinly and reduce the administrative burden. ■

The search for greater flexibility and efficiency

On 25 June 1996, the Commission Directorates-General responsible for implementing research programmes held a working seminar attended by representatives of industry and the scientific community together with Members of the European Parliament. The aim of the meeting was to look at possible ways in which the Commission could improve the management of research programmes.

Introducing the discussions, Mrs Edith Cresson, European Commissioner responsible for research, stressed the increasing importance of Community

RTD programmes in Europe's scientific and industrial life. Of no more than marginal importance 10 years or so ago, research policy is today one of the Union's major policy areas involving tens of thousands of researchers in the 15 Member States and beyond.

THE COMMISSION'S NEW RESPONSIBILITIES

This development has brought with it new responsibilities for the Commission, especially as the research world is showing a growing interest in involvement in Community projects and this success is generating applications which

often far exceed the available funding (the 'oversubscription' problem).

Chaired by Professor Routti, Director-General of DG XII for Science, Research and Development, the seminar allowed for a particularly open discussion and produced many interesting ideas. Some of these will be acted upon to bring a number of short-term improvements whilst others could be implemented in the 5th Framework Programme.

The table below summarises the principal difficulties facing the Commission in its management of European research programmes, together with the remedies proposed by this seminar. ■

Possible improvements*

CORRECTING THE PROBLEM OF OVERSUBSCRIPTION

PRESENT SITUATION

In 1995 calls for proposals generated over 20,000 applications involving more than 100,000 participants. Typically, less than 20% of these proposals could be selected for funding.

OBJECTIVE

To reduce this level of oversubscription, which results in unnecessary effort and frustration on the part of unsuccessful applicants.



MEANS

- Targeting calls for proposals more precisely by concentrating them on clearly defined aspects of the programmes.
- Concentrating the programmes themselves on fewer and/or more focused objectives.
- Providing more information on proposal eligibility conditions and evaluation criteria.
- Establishing "pre-proposal checking" allowing proposers to test the relevance of their response to calls for proposals and the utility of proceeding with their application.

INCREASING THE TRANSPARENCY OF PROCEDURES

PRESENT SITUATION

Project evaluation and selection procedures, based on objectivity and impartiality, are unknown to most applicants.

OBJECTIVE

To increase the transparency and consistency of procedures as they apply to the various programmes.



MEANS

- Drawing up of guidelines for evaluation based on best practice and the publication of evaluation manuals setting out the principles, the procedure, the role of the Commission's experts, the specific nature of the various programmes, special conditions for SMEs, etc.
- The participation of independent observers to monitor the evaluation process and increased transparency in the choice of experts - one third of whom are replaced annually.

* Some of the improvements featured in this table have now been put into practice.

Possible improvements

REDUCING THE TIME TAKEN

PRESENT SITUATION

The average delay between the submission of proposals and the evaluation decision is 4 to 5 months, which seems too long for many applicants, especially SMEs.

OBJECTIVE

To achieve an acceptable evaluation time (not more than 4 months and progressively reduced to 3 months for the measures relating specifically to SMEs) while respecting legal procedures and evaluation quality.



PRESENT SITUATION

The duration of contract negotiation and finalisation is also deemed too long at between 1 and 4 months (supplementary information, discussions between partners on the terms of the contract, etc.)

OBJECTIVE

To reduce the time taken to 2 months, where possible.

MEANS

- Examining the possibility of notifying candidates whose proposals do not meet certain basic conditions.

MEANS

- Publication of guides on contract negotiation.
- Contract negotiation limited in duration.
- Rationalisation of internal financial control for contract finalisation.

STREAMLINING FINANCIAL PROCEDURES

CURRENT SITUATION

As the Commission makes payments to the project coordinator, some partners can experience late payments due to the multiple transfers involved.



OBJECTIVE

To reduce the time taken for payment.

MEANS

- Adopting the system of accelerated payments, particularly for the advance payment on signature of contract (processed within 1 to 2 weeks), as a general practice.
- Accelerating intermediary payments and, subsequently, payment within 60 days on receipt of reports, invoices, etc.

SME-SPECIFIC ASPECTS

CURRENT SITUATION

The lack of information and advice is an obstacle to participation in Community programmes for many SMEs, while specific technology stimulation measures have been introduced especially for them.



OBJECTIVE

To facilitate access to European programmes for SMEs by improving the assistance from national and regional organisations (CRAFT network, Euro Info Centres...).

MEANS

- Inviting Member States to reinforce their support for the CRAFT network.
- Closer cooperation between the different European information networks on RTD activities.
- Progressively reducing the time taken to select a proposal to 3 months and until the signing of contracts to 6 months.

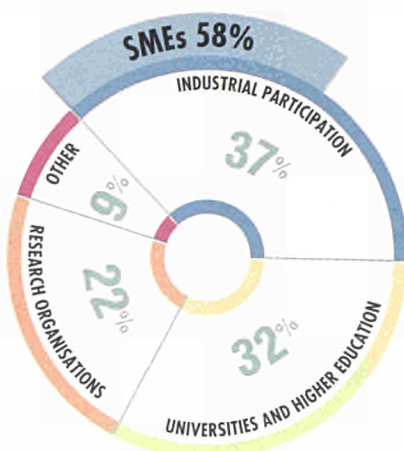
SMEs account for 58% of industrial participation

Between 1990 and 1994, 6,276 participations from SMEs were recorded in RTD projects funded by the 3rd Framework Programme. In 1995 alone there were over 4,500 participations from SMEs.

37% of the partners in research projects accepted for funding during the first year of the 4th Framework Programme are companies. Among these, three out of five (58%) are SMEs⁽¹⁾ - see graph. By comparison, for all projects carried out during the 3rd Framework Programme this proportion was just one in two.

The level of SME participation is particularly high in three specific programmes, which account for three-quarters of the 4,625 small and medium-

PARTICIPATION BY TYPE OF PARTNERS IN 1995
(1st year of 4th Framework Programme)



sized enterprises involved in projects accepted in 1995 (see Table 1):

- Industrial and materials technologies (mainly the BRITE-EURAM programme), which attracted 1,272 SMEs, or 28% of the total SME participation (all categories included);
- Telematics Applications: 1,201 SMEs (26%);
- Information Technologies (ESPRIT): 936 SMEs (20%).

TECHNOLOGY STIMULATION MEASURES FOR SMES

In order to facilitate the participation of SMEs in RTD projects, the specific technology stimulation measures first tested within BRITE-EURAM (the CRAFT programme) now also apply in a number of other programmes (Life Sciences, Energy, Transport, Environment, Information technologies, etc.)

There are two types of measures, both continuously available with a call for proposals open until the end of 1997⁽²⁾:

- exploratory phase awards, providing SMEs with financial support when defining and developing a project (partner search, analysis of markets and innovation opportunities, feasibility studies);

Table 1

Participation of SMEs by programme in 1995

PROGRAMME	EXPLORATORY PHASE AWARDS (%)	COOPERATIVE RESEARCH (%)	OTHER PROJECTS WITH SHARED COSTS (%)	TOTAL OF THE PARTICIPATIONS
INDUSTRIAL AND MATERIALS TECHNOLOGIES	43	29	28	1272
LIFE SCIENCES*	32	6	62	266
ENVIRONMENT**	13	-	87	151
ENERGY	5	-	95	247
TRANSPORT	14	-	86	310
TELEMATICS APPLICATIONS	NA	NA	100	1201
COMMUNICATION TECHNOLOGIES	NA	NA	100	242
INFORMATION TECHNOLOGIES	6	1	93	936
TOTAL 1995	16,5	8,5	75	4625

NA: not applicable

* Biotechnology, Biomedicine & Health, Agriculture and Fisheries programmes

** Including the Marine Science and Technology programme

(1) The criteria for defining an SME are as follows:

- fewer than 500 employees
- annual turnover of less than ECU 38 million
- no more than one third of its capital controlled by a company which exceeds the above criteria.

(2) A "Focal Points" network operates throughout the European Union in order to inform SMEs about these measures.

4TH FRAMEWORK PROGRAMME - RESULTS FOR THE 1ST YEAR (1995)

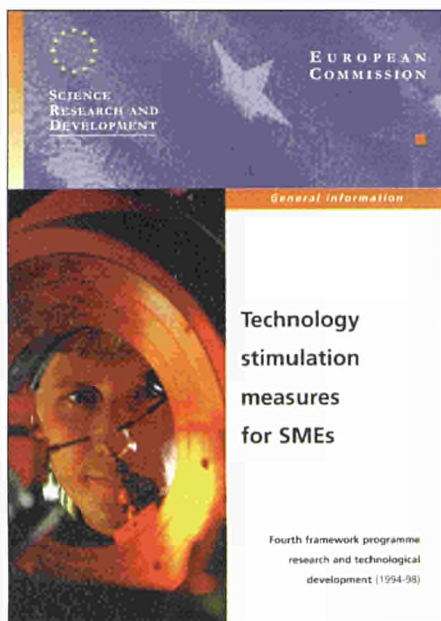
- **cooperative research**, which allows groups of SMEs, with similar needs but little or no research capacity of their own, to commission university

laboratories or research centres to carry out their RTD activities.

Table 1 shows that, in 1995, 25% of SMEs participating in the 4th Framework Programme, all programmes included, made use of these stimulation measures (16.5% for the exploratory phase awards and 8.5% for cooperative research projects). An interesting point is that it is

primarily the very small SMEs - fewer than 50 employees - which benefited most from these two stimulation measures, accounting for 63% and 48% respectively of the projects selected. ■

Contact: DG XII
SME Coordination Unit
Fax +32-2-295.7110
E-mail marc.van-achter@dg12.cec.be



This brochure on technology stimulation measures to encourage SME participation in Community research programmes is available from DG XII (see contact at end of article).

Table 2

1995: Participation of SMEs in technology stimulation measures according to size

SIZE BY NUMBER OF EMPLOYEES	EXPLORATORY PHASE AWARDS		COOPERATIVE RESEARCH	
	PROPOSALS	PROJECTS SELECTED	PROPOSALS	PROJECTS SELECTED
<50	1081	445	463	187
50-100	195	98	145	72
100-250	179	90	162	84
250-500	64	28	78	43
Not specified	110	45	-	-
TOTAL	1629	706	848	386

First SME Technology Days

A two-day Conference, Information Forum and Exhibition - Brussels Congress Centre - 30 & 31 October 1996

About 99.8% of all enterprises in Europe are SMEs (firms with fewer than 500 employees). These SMEs are responsible for 66% of employment and 65% of economic turnover in the European Community.

In the light of increasing global competition, many SMEs have to internationalise their strategies and to innovate. This means, among other things, having access to new technologies or developing themselves the technologies which they need. The research

programmes of the European Union have been designed to help SMEs achieve these goals.

- At the conference special attention will be given to SME-friendly technology stimulation measures ("How to participate?" session).
- Several "success stories" will be presented and SMEs with ideas for proposals can benefit from a pre-screening service carried out by the European Commission.
- A series of parallel workshops will also provide participating SMEs with information on the various Community programmes specifically concerned with RTD.

- Furthermore, SMEs already involved in research projects at a European level will be given the opportunity to meet representatives from venture capital organisations and experts in the field of technology transfer and intellectual property rights.
- Mrs Edith Cresson, member of the Commission responsible for research, education and training, and several other European personalities will be participating in the discussions. ■

Contact: ECCO - European Congress Consultants and Organisers - Brussels
Fax +32-2-640.6697
E-mail d.shanni@ecco-congress.be

THE CURRENT EU-RTD ACTIVITIES

European RTD Policy Update

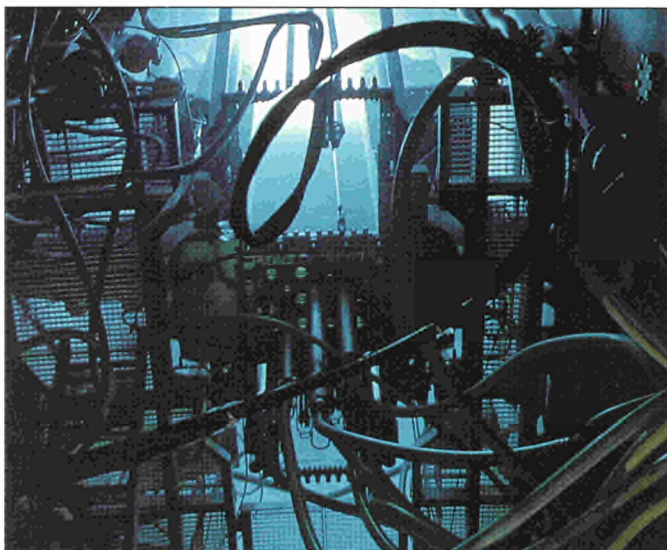
S&T Cooperation with the United States

STARTING GLOBAL NEGOTIATIONS AND RENEWING THE EC-US TASK FORCE ON BIOTECHNOLOGY RESEARCH

Over the past 30 years, EU-US cooperation has considerably expanded under a series of bilateral sectoral agreements in research areas such as nuclear waste, nuclear safeguards, renewable energy sources, the effects of radiation, mineral processing technologies, nuclear fusion, biotechnology, etc. Formal and informal contacts have been maintained between various Commission services and U.S. government departments, and networks of individuals, groups and institutions of many kinds. On 26 June 1996, for instance, Mrs Edith CRESSON, Commissioner responsible for Research, Education and Training, signed the renewal of the EC-US Task Force on Biotechnology Research, following the active cooperation developed over the previous five years.

To encourage the growth of these various enterprising partnerships, both sides have felt a rising need to give them a more solid and viable basis and to create a comprehensive legal framework for S&T. The negotiations to reach this general agreement, which will be managed by DG XII, were launched on 11/12 July 1996. They are the direct result of the New Transatlantic Agenda agreed at the EU-US summit in Madrid in December 1995.

Contact: Mr Louis Bellemin
DG XII/B3
Fax: +32.2.29.69824



The High Flux Reactor (HFR) facility at the Institute for Advanced Materials of the Joint Research Centre at Petten (Netherlands)

Multimedia content

THE INFO-2000 PROGRAMME

On 20 May 1996, the EU Council of Ministers agreed on this new 4-year/ECU 65 million initiative which replaces the previous IMPACT Programme. It aims to stimulate the development of the European multimedia content industry in the emerging Information Society. Two calls for proposals were launched in June 1996 and closed in September 1996. Further information can be found on the I'M Europe server.

Internet:
<http://www2.echo.lu/info2000/infhome.html>

JRC

RENEWAL OF THE HFR RESEARCH PROGRAMME

The Council of Ministers has renewed for the 1996-99 period the High Flux Reactor (HFR) Pro-

gramme developed by the Institute for Advanced Materials of the Joint Research Centre (JRC) at Petten (Netherlands).

The HFR is one of the few centres in the world capable of measuring the dose of irradiation needed

for the needles used by hospitals in the treatment of cancerous tumours by brachithery. It supplies 60% of the radioisotopes needed in Europe, thereby contributing to the diagnosis and care of 7 million patients.

The nuclear reactor of Petten is also playing an active part, together with other European partners, in research on Boron Neutron Capture Therapy (BNCT), a new and promising way of treating certain cancers, in particular brain tumours called gliomas.

The HFR is a supplementary research programme funded partly by three Member States, namely France, Germany and in particular the Netherlands (ECU 40 million for 1996-99). The rest of the resources (ECU 35 to 40 million) will come from contracts with the radiopharmaceutical industry.

Contact: Mr J.-C. Filori
Fax: +32.2.29.63000

Full access to the latest European RTD news on the Web

More detailed data on all information presented in RTD-INFO can be easily accessed on the World Wide Web:

- The DG XII Home Page is now offering both all the basic background information on the Framework Programme and a wide range of news on current and future activities related to European RTD (press releases, calls, events, publications, etc.).
Internet: <http://europa.eu.int/en/comm/dg12/dg12tst2.html>

- The RTD-News database developed by CORDIS is now available in three languages - English, French and German - from the CORDIS home page.
Internet: <http://www.cordis.lu/>

Results of recent calls for proposals



3rd call for proposals*

TELEMATICS APPLICATIONS

67 projects selected for funding

The total number of proposals received was 413. The 67 selected proposals will receive EU funding of ECU 64 million. Applications for the disabled and elderly sector represent almost 50%, the other half being equally shared by health care, education & training and language engineering.

* launched on 15/9/1995



2nd call for proposals*

BIOTECHNOLOGY

Approval for 152 R&D projects

This call attracted a record number of applications: 797, involving over 5,058 participants. Responding to health care needs, developing new industrial processes and preserving genetic resources are prominent themes among the 152 projects selected for the available funding of ECU 206.6 million. The evaluation was carried out by 360 experts, with 29% from industry, distributed among 21 panels according to the scientific area.

Featuring prominently are ambitious and innovative projects to develop cell factories, devise novel vaccines, sequence the ge-

nomes of living organisms, and provide animal models for medical research or tools to monitor biodiversity, etc. Industrial participants are now found in 65% of projects, comparing favourably to the biotechnology projects funded a decade ago when industrial participation was less than 40%. In particular, the involvement of SMEs (80 participants) has surged. These trends reflect the growing commitment of various economic sectors to incorporate technological progress and convert scientific advances into new processes and products.

In the vaccines area, 14 projects involving 12 European companies match the priorities identified by the Task Force on Vaccines and Viral Diseases

* launched on 15/9/95 and closed on 10/1/1996

42 training grants awarded so far in 1996

Following the 1st deadline (1/3/96), 42 grants were awarded following the 84 applications submitted. A further 85 received for the 2nd deadline of 1/7/96 are under evaluation. Next deadline will be on 1/11/96.



2nd call for proposals*

INDUSTRIAL & MATERIALS TECHNOLOGIES

939 applications were received with requested European Union funding totalling ECU 1,760 million. They are currently being evaluated to select the projects to qualify for

the ECU 400 million available. 84% of the applications concern industrial research projects and the industrial participation represents 63% of all the partners.

* deadline: 17/4/96



INCO-COPERNICUS call for proposals*

INTERNATIONAL COOPERATION

261 projects selected

This INCO-COPERNICUS call for proposals for cooperation with Central European Countries and the New Independent States of the former Soviet Union elicited almost 2000 proposals and has resulted in the selection of 261 projects for a total financing of ECU 68 million.

* deadline 29/2/96



2nd call for proposals*

FAIR (AGRICULTURE AND FISHERIES)

50 projects to boost European agri-food industry

The 50 projects were adopted from a list of 233 proposals involving 1,484 participants.

Forty-one projects deal directly with the food industry while nine deal with non-food developments of industrial products from biological raw materials. The total EC contribution to these projects

amounts to almost ECU 50.4 million. Out of 308 partners, 33% are companies; they are taking part in 42 of the projects and putting up a financial contribution of 50% of the total project costs. Industrial partners include both SMEs and major companies from the agri-food, paper, chemical, pharmaceutical, and forest industry sectors.

* launched on 15/6/1995



2nd call for proposals*

NUCLEAR FISSION SAFETY

89 selected proposals

152 proposals were received by the second deadline (28 February 1996). A total of 148 eligible proposals were evaluated by 7 groups of experts in the period 18 March - 18 April 1996 for their scientific, technical and strategic merit. All research areas of the programme were covered, i.e. exploring innovative approaches (only concerted actions); reactor safety; radwaste management and disposal, and decommissioning; radiological impact on man and the environment; mastering the events of the past.

Contract negotiations are now being started for the 89 selected proposals with a total EC contribution of about ECU 44 million. This concludes the implementation of the shared-cost actions of the programme, while concerted actions are open up to 1 November 1997.

* launched on 17/1/1995, closed on 28/2/96

THE CURRENT EU-RTD ACTIVITIES

Ongoing/upcoming calls for proposals

(from October 1996)

PROGRAMME (+ CONTACTS)	PUBLICATION	DEADLINES	AREAS (+ SPECIFIC CONTACTS)
INFORMATION TECHNOLOGIES (ESPRIT) Fax: +32-2-296.83.88 E-mail: esprit@dg3.ccc.be Contact: Mrs G. Colling	17.9.96	18.12.96* 15.12.96**	Research on the following themes: software technology, technological components & subsystems, multimedia, long-term research, open microprocessor systems initiative, high performance computing & networking, technology for business processes, integration in manufacturing. <i>* for one-step evaluation / ** for 1st two-step evaluation</i>
	15.3.96 (mise à jour)	16/9/96*	Continuous submission: IT project traineeships. <i>* expected to be extended in 9/96</i>
	15.3.96	16/9/96*	Continuous submission: preparatory, support & transfer activities. <i>* expected to be extended in 9/96</i>
	15.3.96 (mise à jour)	16/9/96*	Continuous submission: open long-term research, technology transfer actions, SME exploratory awards. <i>* expected to be extended in 9/96</i>
TELEMATICS APPLICATIONS Fax: +32-2-295.23.54 E-mail: telematics@dg13.ccc.be	15.9.95	Open until 15.6.98	Rolling call: Support actions (awareness, dissemination of results & promotion of telematics, international cooperation, education).
	15.12.96*	*	Call for proposals covering all the main sectors of the Telematics Applications Programme. <i>* Date to be confirmed</i>
INDUSTRIAL & MATERIALS TECHNOLOGIES Fax: +32-2-296.70.23 +32-2-295.80.46	15.12.94	Open until 17.12.97	Continuous open call for CRAFT & thematic networks: production technology, materials & product innovation, transport.
	15.12.95	Open until 20.5.98	Accompanying & support measures (open call).
	16.12.96*	according to areas**	3rd call for proposals (some areas in coordination with Information Technology, Telematics and Transport programmes). <i>* date to be confirmed / ** to be specified later</i>
STANDARDS, MEASUREMENT & TESTING Fax: +32-2-295.80.72 Contact: Mr P. Mériquet	15.12.94	Open until 17.12.97	Thematic networks.
	15.6.96	15.11.96	Dedicated call: CEN, ETSI, CENELEC & support to Community policies.
	15.6.96	28.11.96	Measurements for quality European products, measurements related to the needs of society, prenormative research & technical support to trade.
	15.6.97	13.11.97	Technical support for trade, measurements related to the needs of society.
ENVIRONMENT & CLIMATE Fax: +32-2-296.30.24 E-mail: environ- infodesk@dg12.ccc.be	17.9.96	15.1.97	Shared Cost Actions: Environment technology (contact: Mr P. Reiniger); research into the natural environment, environment quality & global change (Mr A. Ghazi); space technology applied to environment monitoring & research (Mr M. Paillon); human dimensions of environmental change (Mr A. Sors).
	15.12.95	20.3.97 20.8.97 20.3.98 20.8.98	Research training grants: research into the natural environment, environment quality & global change, environment technology, space technology applied to Earth observation & environment research, human dimensions of environment change. Contact: Mr A. Arribas San Martin / E-mail: angel.arribas@dg12.ccc.be
	17.1.95 15.6.95	1.4.98	Technology stimulation measures for SMEs: cooperative research. Contact: Mr P. Wicks / E-mail: peter.wicks@dg12.ccc.be
	16.4.96	15.10.96	Shared cost actions, concerted actions and dissemination-exploitation, including demonstration projects: research on marine systems, extreme marine environments, regional seas research (North-Eastern Atlantic), coastal & shelf seas research, coastal engineering & natural defences, marine generic technology; advanced systems.
MARINE SCIENCE & TECHNOLOGY Fax: +32-2-296.30.24 E-mail: mast-info@dg12.ccc.be Contact: Mr J. Boissonnas	16.4.96	15.10.96	Shared cost actions, concerted actions and dissemination-exploitation, including demonstration projects: research on marine systems, extreme marine environments, regional seas research (North-Eastern Atlantic), coastal & shelf seas research, coastal engineering & natural defences, marine generic technology; advanced systems.

THE CURRENT EU-RTD ACTIVITIES

PROGRAMME (+ CONTACTS)	PUBLICATION	DEADLINES	AREAS (+ SPECIFIC CONTACTS)
	16.4.96	15.1.97	Idem: Structure & dynamics of coastal ecosystems
	15.3.96	27.6.97* 12.6.98**	Concerted actions* / Preparatory accompanying & support measures**: Standards for training & work; modelling, ocean-data management & quality control for research & operational applications; use of heavy experimental equipment, research vessels & their modular equipment, large computing facilities & other technical resources in the European Economic Area; design of components and systems for heavy advanced equipment; calibration techniques & standards for marine instrumentation & observational equipment.
BIOTECHNOLOGY Fax: +32-2-299.18.60 E-mail: life-biotech@dg12.cec.be Contacts: R&D: Mr A. Aguilar Demonstration: Mr A. Herrero ELSA - Mr E. Elizalde	15.6.96	18.10.96	Genome analysis (function search & comparative analyses), plant molecular & cellular biology, somatic gene therapy, immunology & immunotechnology, structure/function relationships, structural biology/electronics, in vitro pharmaco-toxicology, environmental biotechnology, infrastructures, horizontal activities. Demonstration projects: open in all programme areas.
	15.6.97	Sept. 97	Cell factories, genome sequencing, animal mapping & selection, animal models, cell communications in neurosciences, transdisease vaccinology, structure/function relationships, biosafety, biodiversity, infrastructures, horizontal activities. Demonstration projects: open in all programme areas
BIOMEDICINE & HEALTH Fax: +32-2-295.53.65 (contacts: R&D - Mr A. Vanvossel Demonstration: Mr A. Herrero ELSA - Mr E. Elizalde	17.9.96	17.12.96	Diseases with major socio-economic impact (cancer, cardio-vascular diseases, chronic diseases, ageing & age-related diseases, etc.), public health, biomedical ethics. Ethical, legal & social aspects (ELSA). Demonstration projects in the above areas.
	Open call	31.12.96	Grants in the following areas: diseases with major socio-economic impact, public health research, biomedical ethic - Contact: Mr A. Vanvossel.
	Open call	31.12.97	Grants in all areas of the programme - Contact: Mr A. Vanvossel.
AGRICULTURE & FISHERIES Fax: +32-2-296.43.22 (contacts R&D - Mr X. Goenaga Demonstration: Mr A. Herrero ; ELSA - Mr E. Elizalde	déc-96	March 97	R&D: integrated production & processing chains, agriculture, forestry, rural development, fisheries & fish farming, objectives addressed by ethical, legal & social aspects. Demonstration: all the areas.
	June 97	Sept. 97	R&D: Generic science & advanced technology for nutritious foods, agriculture, sylviculture, rural development, fisheries & fish farming.
NON-NUCLEAR ENERGY (JOULE Programme) See contacts in column 4	17.9.96	31.1.97	R&D shared-cost actions: selected in energy RTD strategy, rational use of energy, renewable energies, fossil fuels. Contact: Mr M. Poireau - Fax +32-2-296.6882
	15.1.97	15.05.97	R&D shared-cost actions: the areas of this call will be defined later. Contact: Mr M. Poireau - Fax +32-2-296.6882
	15.12.94	17.12.97	Continuous open call: preparatory, accompanying and support measures. Contact: Mr P. Fernandez-Candas - Fax +32-2-296.4288
	2.6.95	1.6.98	Continuous open call: call for expression of interest. Contact: Mr P. Fernandez-Candas - Fax +32-2-296.4288
	15.12.94	17.12.97	Technology stimulation for SMEs (cooperative research projects & exploratory awards) - Contact: Mrs I. Tenten - Fax +32-2-295.0656.
	15.6.96	1.7.98	Training grants for young researchers (post-graduate and post-doctoral) in the field of non-nuclear energy Contact: Mrs I. Tenten - Fax +32-2-295.0656.
NON-NUCLEAR ENERGY (THERMIE PROGRAMME - DEMONSTRATION PROJECTS) Contact: Mr W Folkertsma Fax +32-2-295.0577	15.12.94	17.12.97	Call for proposals for energy RTD strategy (rational use of energy, renewable energies, fossil fuels); dissemination of energy technologies (international cooperation, information & communication tools); preparatory; accompanying and support measures (financial instruments, environmental impact of energy technologies); technology stimulation measures for SMEs; exploratory phase of demonstration projects for SMEs.

THE CURRENT EU-RTD ACTIVITIES

PROGRAMME (+ CONTACTS)	PUBLICATION	DEADLINES	AREAS (+ SPECIFIC CONTACTS)
	17.9.96 Sep 97	31.1.97 Jan 98	Call for targeted demonstration projects - type A (rational use of energy, renewable energies, fossil fuels).
	17.9.96	31.1.97	Call for targeted demonstration projects (advanced pulverised coal boiler using ultra super-critical steam-water cycle).
NUCLEAR FISSION SAFETY Fax: +32-2-295.49.91	17.1.95	1.11.97	Concerted actions & support to thematic networks. Contacts: Mr W. Balz & Mr J. Sinnaeve
TRANSPORT Fax: +32-2-296.83.56	15.12.96	15.3.97	Strategic research, rail transport, integrated transport chains, air transport, urban transport, waterway transport, road transport. Contact: Mr W. Blonk
TARGETED SOCIO-ECONOMIC RESEARCH Fax: +32-2-296.21.37	17.9.96* 15.3.97*	** 15.6.97	Science & technology policy options, research into education & training, research into social integration & exclusion in Europe (only in certain areas). Contact: Mr S. Parker - E-mail: tser-secr@DG12.cec.be <i>* date to be confirmed - ** date to be specified</i>
INTERNATIONAL COOPERATION Fax: see column 4	13.2.95	1.3.97 1.3.98	Grants (Japan, Korea). Contact: Mr L. Bellemin - Fax: +32-2-296.98.24
	15.3.97	15.9.97	Scientific & technology cooperation with developing countries. Contact: Mr T. Hall - Fax: +32-2-296.62.52
	15.3.97	15.6.97	Cooperation with Central & Eastern European countries & the New Independent States of the former Soviet Union. Contact: Mr M. Genovese - Fax: +32-2-296.33.08.
DISSEMINATION & EXPLOITATION OF RESULTS Fax: see column 4	15.12.96	16.3.97-18.9.97	European networks & services of technology transfer & innovation support. Contact: Mr R. Miège - Fax: +352-4301-34544
	15.12.96	16.3.97	Financial actions (Mr R. Miège).
	15.9.96 97	15.12.96 97	Technology transfer & technology validation projects. Contact: Mr J.N. Durvy - Fax: +352-4301-34129
	end 96	97	Network of innovation relay centres (complementary action). Contact: Mr J. Hernandez-Ros - Fax: +352-4301-34129
TRAINING & MOBILITY OF RESEARCHERS Fax: +32-2-296.90.28 E-mail: tmr-info@dg12.cec.be Contact: Mr A. Mitsos	16.9.96	3.2.97	Research training networks. E-mail: tmr-info@dg12.cec.be
	16.9.96 17.3.97 15.9.97	16.12.96 16.6.97 15.12.97	Research training grants (Marie Curie fellowships). E-mail: tmr-grants@dg12.cec.be
	16.9.96 17.3.97	16.12.96 17.6.97	Access to large-scale facilities. E-mail: tmr-info@dg12.cec.be
	16.12.96 16.6.97 15.12.97	1.4.97 30.9.97 31.3.98	Euroconferences, summer schools & practical training courses. E-mail: tmr-info@dg12.cec.be
MEASURES FOR SMES Fax: +32-2-295.71.10 E-mail: g.clarotti@mhsg.cec.be	15.12.94	Open until 17.12.97	Industrial & material technology; standards, measurements & testing; environment & climate; marine sciences & technology; biotechnology; biomedicine & health; agriculture & fisheries; non-nuclear energy; transport. Contact: Mr G. Clarotti

GENERAL INFORMATION : Fax : +32-2-295.82.20 • Michel Claessens • E-mail : michel.claessens@dg12.cec.be
Stephen Gosden - E-mail : stephen.gosden@dg12.cec.be

Upcoming events

EUROPEAN RTD POLICY

SME Technology Days - Brussels, Belgium, 30-31/10/1996

• See box p. 6

INFORMATION SOCIETY

EITC'96: "Doing Business in the Information Society"

Brussels, Belgium - 25-27/11/1996

Organised by DG III (Industry)

Contact: Mr. J. Richter

Fax +32-2-2966613

E-mail: eitc96@dg3.cec.be

Internet: <http://www.cordis.lu/esprit/src/eitc96.html>

- Focus on electronic commerce, IT applications, enabling technologies and major take-up initiatives.
- A key part of the conference will be "Access to financial markets" with case-studies of successful innovator-investor partnerships, workshops on the many new financial instruments now available, and round tables featuring prominent investors.
- Intensive tutorial for SMEs on "Approaching venture capitalists".
- Exhibition: company-centred stands presenting leading-edge technologies and products stemming from the ESPRIT programme.

Cyberspace: Europe's advantage?"

Montpellier, France - 6-8/11/1996

Organised by IDATE (Institute for Audiovisual and Telecommunications in Europe) with support from DG XII

Contact: IDATE Ms. N.Sulmoni

Fax +33-67144400

Internet: http://www.idate.fr/jii/jii_a.html

- The implications of the latest developments and industrial strategies in telecommunications, information technology and audiovisual media.
- Aimed at major industrial group leaders, users, researchers, academics, administrators and politicians in order to forge a better understanding of the future of the information sector.

Multidisciplinary forum on electronic records

Brussels, Belgium, 19-20/12/1996

Jointly hosted by the EU Member States and the European Commission

(Secretariat General and DG XII)

Contact: EC General Secretariat Mrs. Christine Beckers,

Unit SG1/AH

Fax +32-2-2961095

E-mail: d1m-forum@sg.cec.be

- Objective: to bring together specialists and executives involved in the management of information flows and electronic records (public administrations, archivists, industry suppliers, researchers) in order to prepare a set of guidelines for best practice and to investigate possibilities for wider cooperation in the field.

TELEMATICS

TELEWORK'96 - Telework and new ways of working

Vienna, Austria, 4-6/11/1996

Organised by the European Community Telework Forum (ECTF), in association with DG XIII

Contact: ECTF

Fax +43-1-4067752

E-mail: bco.breit@magnet.at

- Assessment of the state of progress in implementing telework across Europe.
- With case studies from users and experts illustrating experiences in teleworking.

Two-day Business Partnership meeting for SMEs

Berlin, Germany, 25-26/10/1996

Organised by the European network of SMEs in telematics industries (ESMET), in cooperation with the European Community's INTERPRISE programme

Contact: ESMET - Mr. Andreas Frank

Tel. +49-30-39902320

- Apart from the brokerage aspect of this meeting, ESMET will also organise two seminars to discuss telematics applications and best practice solutions and present the results of selected SME projects supported by the Community's specific RTD programmes.

THE CURRENT EU-RTD ACTIVITIES

INDUSTRIAL TECHNOLOGIES & MATERIALS

International symposium "Modern machining technologies and production techniques in the European sub-contracting industry"

Venlo, the Netherlands, 31/10/1996
 Contact: Lavell BV
 Fax +31-46-4515234

- With a view to setting up licence agreements, the symposium will present new products and new production techniques developed for the supplying industry by the largest CRAFT project funded by BRITE/EURAM, which brought together 17 companies in the metal and plastic machining business and research institutes from Germany and the Netherlands.

ENVIRONMENT

Conference on Mediterranean Desertification

Crete, Greece, 29/10-1/11/1996
 Organised jointly by DGs VI, XI, XII and XVI
 Contact: DG XII Mr. P. Balabanis/Mr. D. Peter
 Fax +32-2-2963024
 E-mail: p.balabanis@mhsq.cec.be

- This international Conference aims to strengthen the visibility of EC policy action and research in the field of Mediterranean desertification, to promote awareness of the extent, nature and urgency of the desertification problem, and to translate scientific research into policy development and practical action.
- Analysis of research results and policy implications in the field.
- Round tables subjects: formulating research priorities; cooperation in combating desertification; Mediterranean land use and sustainability.

AGRO-INDUSTRIAL RESEARCH

Conference on pulp and paper research

Stockholm, Sweden, 9-11/10/1996.
 Organised by the Swedish Pulp and Paper Research Institute with support from DG XII/E-2
 Contact: SPPR - Mr. Lennart Eriksson
 Fax +46-8-104009
 E-mail: Lennart.Eriksson@stfi.se

- Presentation of Community-supported research projects in the area of pulp and paper.
- Forum for discussion between representatives from industry, government agencies and the European Commission

NUCLEAR FISSION SAFETY

Management and Storage of Radioactive Waste

Stein-am-Rhein, Switzerland, 28-30 /10/1996
 Contact: H. von Maravic DG XII-F-5
 Fax +32-2- 296 6883

- 7th EC-Natural Analogue Working Group Meeting jointly organised by the European Commission and NAGRA to discuss the applications of Natural Analogues to the safety evaluation of radioactive waste disposal systems, as well as their potential future application to toxic wastes.

NON-NUCLEAR ENERGY (JOULE COMPONENT)

Attracting Private Investment to Sustainable Energy

Brussels, Belgium, 23-25 /10/1996
 Organised by Energy 21 (Paris) under the sponsorship of DG XII-F
 Contact: Energy 21 - Mrs. C. Parnière / Mr. E. Blaustein
 Fax: +33-1-46-04-80-99
 DG XII - Mrs. Irmela BRACH
 Fax +32-2-299-49-91

- Case studies illustrating the financial and investment mechanisms used or under study.
- Presentation of mechanisms from traditional financing to specialised techniques such as security measures, and the importance of structuring packages which marry different finance sources and techniques.
- Examples relating to emerging markets and developing countries.

MULTI-SECTORAL AREAS

TEC'96: Fifth European Forum of Competitive Technology

Grenoble, France, on 15-17/10/1996.
 Organised by the Grenoble Chamber of Commerce and Industry with the support of DG XIII and DG XII
 Contact: TEC'96
 Fax +33-76282795
 E-mail: tec@esc-grenoble.fr

- Objective: to bring together 20,000 professional European visitors including: economic actors, research laboratories, major companies, SMEs working in high technology fields, and government bodies.
- Sectors to be covered: new information, and communication technologies; computerisation: information super highway, multimedia, virtual reality, databases; latest advances in micro-electronics; technologies in life sciences; new materials applications; services to assist in the exploitation of new inventions and in technology transfer.

Recent Publications

EUROPEAN RTD

Euroabstracts: Second 1996 edition

Eur-OP • Fax +352-488573

Statistics in focus: Innovation in the European Union - Information taken from the Community Innovation Survey held in 1993 across the then 12 EC Member States and Norway, with some 40,000 enterprises surveyed.

EUROSTAT - Mr. Pino • Fax +352-430134149

Statistics in focus: Research and development in the EU - An overview of R&D activities (expenditure, staff, public funding, ...) in the Member States.

EUROSTAT - Mr. Pino • Fax +352-430134149

Research and rural regions

Eur-OP • Fax +352-488573

INFORMATION SOCIETY

Information Europe - A new quarterly magazine launched by the European Bureau of Library, Information and Documentation Associations (EBLIDA) in the fields of copyright, culture, education, information technology and opportunities for Central and East European cooperation.

EBLIDA - Ms. Barbara Schleihagen
Fax +31-70-3090708

Internet: <http://www2.echo.lu/libraries/en/eblida.htm>

Final evaluation of the IMPACT II Programme (1991-95)

IMPACT/INFO2000 Central Office
Fax: +352 4301 32847

TASK FORCE "CAR OF TOMORROW"

New newsletter of the Car of Tomorrow Task Force

DG XII - Mr. E. Ponthieu • Fax +32-2-2991847

Details of recent work undertaken in the Task Force, and advance notice of planned activities.

Internet: <http://europa.eu.int/en/comm/dg12/tf-aut-h.html>

ENVIRONMENT & CLIMATE

ECOSYSTEMS Research Reports Series

DG XII - Mr. H. Barth • Fax +32-2-296.3024

N°18 - Functional Analysis of European Wetland Ecosystems

A new approach to assess and classify wetlands in view of their potential role for society.

BIOTECHNOLOGIES / BIOMEDICINE AND HEALTH

Trends: A new series on advanced research topics of European interest in life science.

DG XII - Mr. Sonnino • Fax +32-2-2963261

AGRICULTURE AND FISHERIES

AIR (1991-1994) - Catalogue of R&D projects:

DG XII - Mrs N. Bounaga Riveill • Fax + 32-2-296 4322

An informative picture of 426 projects giving a useful guide to state-of-the-art relevant European research activities in the field.

INTERNATIONAL COOPERATION

Science & Technology for Development (STD-3)

DG XII - Mr Braun • Fax +32-2-296.6252

Agriculture: Projects Summaries

An overview of the objectives, activities and expected outcome or results of the 167 STD-3 cooperation projects between partners from EU and Developing Countries in the Agriculture sector.

HUMAN CAPITAL AND MOBILITY PROGRAMME / TRAINING AND MOBILITY OF RESEARCHERS

Large-scale facilities funded by the Human Capital and Mobility programme

DG XII - TMR Programme • Fax +32-2-2962136

The HCM programme (1990-1994) has provided funding for access by more than 1,500 researchers to 70 of Europe's large-scale facilities.

Internet: <http://www.cordis.lu/tmr/home.html>

Microfabrication with synchrotron radiation

DG XII-G - TMR programme • Fax +32-2-295 6995

Dynamics of membrane protein insertion and folding

Internet: <http://www.cordis.lu/tmr/home.html>

Magnetic molecular materials

Three booklets outlining the activities and results of research networks funded under the Human Capital and Mobility programme

INNOVATION PROGRAMME

Innovation brochure: Dissemination and optimisation of the results of research activities - Published by DG XIII of the EC.

DG XIII/D-2 • Fax +352-4301-32084

Innovation across cultural borders -

A tool including a book and diskette presenting six cases of critical "intercultural" events which occurred in large-scale/multi-partner/cross-border projects

Innovation Programme - Technology Assistance Unit
Fax: +352 433890

COST

Karst Groundwater Protection - Guidelines (COST 65).

DG XII • E-m: a.beisland@mhsg.cec.be

JRC / ENVIRONMENT INSTITUTE

1995 Annual Report

JRC - Ispra (Italy) • Fax +39-332-785818

Internet: <http://www.ei.jrc.it/report>

Projects for a sustainable development



The "Environment & Climate" programme, which accounts for 7% of the budget for the 4th Framework Programme, covers four main areas of research: climatology and global change, environmental technologies, space technology and socio-economic effects. The four initiatives described below demonstrate both the diversity of this research and its relevance to the present concerns of European society.

- Two of these initiatives concern subjects of common concern to everybody living in Southern Europe and the Mediterranean Basin: the pollution of the Mediterranean and the fight against forest fires.
- The other two are of general interest to all European countries and indeed to the whole planet: the safeguarding of cultural heritage and the impact of

human activities on climate change.

- Research into the conservation of our cultural heritage is justified first and foremost because our heritage forms the basis of a cultural identity and quality of life to which all European people are deeply attached. Furthermore, it constitutes a source of employment and growing economic activity throughout the continent.
- As to the evaluation of mankind's influence on the climate, we are all very much aware of the global challenge posed by this issue which calls into question all prospects for humanity's further development.

1. EROS 2000: shedding unexpected light on the state of the Mediterranean

The Mediterranean Sea is much less polluted than we had supposed: ap-

proximately 90% of the pollution which the Rhone unloads into the Mediterranean falls to the sea bed, where it forms a relatively limited zone of sedimentation which does not reach the waters of the open sea. This surprising discovery, which overturns accepted ideas, is the fruit of research conducted over a number of years by scientists working on the EROS 2000 project (European River Ocean System).

Launched in 1988 by the European Commission, EROS 2000 is a long-term multidisciplinary project aimed at improving our understanding of the physical and bio-geochemical processes at work along the European coastline. EROS 2000 is endeavouring to reinforce the scientific knowledge base, which will allow us to reach a realistic compromise between economic development and the protection of the marine environment. ►

Sustainable development, the basis of European environmental research

The role of European environmental policy has been growing in importance for the last twenty years or more. The need to incorporate all human activities within the framework of a sustainable development which respects the environment is now clearly laid down in the EU Treaty itself.

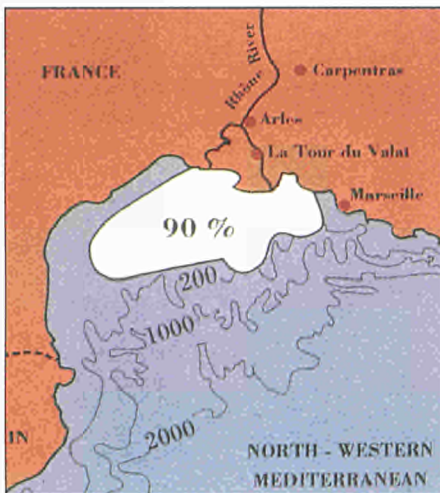
Environmental research plays a key role in realising this objective, especially in developing clean technologies, as the Commission White Paper on Growth, Competitiveness and Employment stressed in 1993. The RTD programmes in this area, financed by the European Commission since the very first framework programmes, have progressively made it possible to take up this challenge at a coordinated European level.

With a budget of ECU 567 million under the 4th Framework Programme 1994-1998, the "Environment and Climate" programme is active in four fields:

- research into the natural environment, the quality of the environment, and global change in order to better understand natural mechanisms;
- technologies for the environment in the field of monitoring, protecting and restoring the environment, and risk evaluation;
- space technology applied to Earth observation in order to determine our planet's state of health with the help of satellite data;
- the human dimension of environmental changes, by evaluating their causes and socio-economic effects.

As the key to sustainable development, the results of this research are of crucial importance to Europe's political and economic decision-makers who need to know the environmental constraints to be respected when setting their objectives and making investments. But the Union's research activities do not only reflect the need for technological and industrial development. They also meet the demands of the citizens, who are growing increasingly concerned by the quality of the environment. ■

Contact: Environment & Climate Programme Infodesk
Fax +32-2- 296. 3024
E-mail environ-infodesk@dg12.cec.be



The work of EROS 2000 has shown that 90% of the pollution discharged into the Mediterranean by the Rhone is deposited in a relatively limited sedimentation zone.

The data collected should permit a more rational management of Europe's coastal areas.

During the first phase of EROS 2000 (1988-1993), 25 research institutes from 12 countries studied the relative importance of different types of pollution likely to contaminate the Mediterranean. These investigations were initially concentrated in the Gulf of Lions (the Mediterranean Gulf west of the Rhone delta), and later extended to the whole of the western Mediterranean.

Apart from the results concerning coastal pollution (as referred to above), the researchers also established that much of the marine pollution in the Mediterranean originated in the atmosphere, rather than from river discharge. For example, pollutants are carried to the Mediterranean by sand from the Sahara. These results reinforce and clarify the bases of European environmental management policy. It is no longer going to be possible to control pollution in the Mediterranean by limiting our efforts to controlling river discharges alone.

THE CASE OF THE BLACK SEA

Since 1994, the EROS 21⁽¹⁾ project, the successor to EROS 2000, has been extended to the Black Sea: 20 Community research institutes (from Belgium, France, Germany, the Netherlands, Spain, the United Kingdom and Ireland)

have been working with colleagues from Russia, Ukraine, Rumania and Bulgaria. Together, they are studying the effects of discharge from the Danube on the Black Sea's ecosystem.

They are also trying to quantify the volume of greenhouse gases emitted by the Black Sea. Measurements taken to date suggest a very high concentration of methane in the sea and the impact of these emissions can even be detected in the troposphere. Russian scientists involved in the project have also identified the presence of funnel-shaped calcium structures on the sea bed which emit methane, which rises to the surface.

(1) The activities of EROS 21 are coordinated by Dr Jean-Marie Martin, Director of the Environment Institute at the Joint Research Centre (JCR) in Ispra (Italy).

2. Techniques for saving European cultural heritage

European scientists involved in a recent research project are seeking to improve the microclimatic conditions inside museums and galleries housing works of art. Their work is designed to



The use of advanced technologies makes it possible to analyse the causes, consequences and mechanisms of the deterioration of works of art and to propose suitable means of protection.

limit the risks of deterioration of works of art due to tourist traffic, lighting, heating and air conditioning, while maintaining public comfort and access. It is concentrated at a number of museums in Venice, Vienna and Norwich, although the results will be of interest to museums throughout Europe. This joint Italian-French-British project also receives European Commission funding and illustrates the kind of Community research activities to protect the cultural heritage which the Commission has supported since 1986 under the "Environment & Climate" programme.

Initiatives in this area of research over the past 10 years cover all aspects of the European cultural heritage, not only monuments such as the Acropolis in Athens, Trajan's column in Rome, the cathedrals of Chartres, Seville, and London and other monuments in Vienna, Paris, Venice, etc., but also the problems posed by the conservation of all items of cultural interest, such as paintings, books, metal objects, etc. Having in common the use of high technology to achieve a cultural objective, the projects supported in this field focus on a wide variety of problems. These range from an analysis of the causes, effects and mechanisms of deterioration of environmental origin (including effects linked to the abusive use of certain techniques and mass tourism) to research into and the evaluation of protection and conservation methods.

IMPACT ON EMPLOYMENT AND SMES

All these projects provide researchers, restorers, architects and politicians with valuable information on the measures required in order to protect our cultural heritage.

They therefore have a significant impact on employment as they preserve cultural tourism as a major economic sector. They are also of interest to an increasing number of SMEs, and promote the creation of new specialised jobs based on the new technologies of protection and conservation.

3. Satellites helping the fight against forest fires

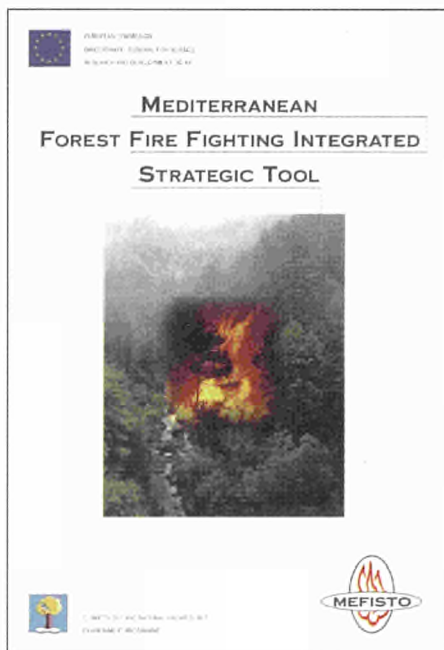
How can the fight against forest fires benefit from real time observations from space? This is the question the FUEGO project, recently selected by the Commission in the framework of "Space technology applied to Earth observation and environmental research", intends to answer. The Spanish coordinator is linking up with five other partners (three Spanish, one French and one Italian) on this project, which should produce a full definition of the technical specifications of on-board satellite equipment (detectors, processors, etc.).

The scale of forest fires in Europe has caused the Commission to include them among the areas targeted by research into environmental protection. Every year, an average of 45,000 forest fires break out in Europe, most of them in the Mediterranean region. Between 1989 and 1993, 2.6 million hectares went up in smoke as a result. The cost is enormous: between ECU 1,000 and 5,000 per hectare destroyed, if fighting fires and reforestation is included.

FIGHTING ON ALL FRONTS

While research into space-based remote sensing makes a valuable contribution to the Commission's work in the fight against forest fires, the Commission also supports research into developing and certifying advanced forest fighting technologies. For example, the MEFISTO (Mediterranean Forest Fire Fighting Integrated Strategic Tools) project - bringing together partners from the United Kingdom, Portugal, Greece and Italy - has developed a forest fire simulator which is able to predict the way a fire is going to spread under real conditions. This tool has been successfully tested on three forest fires in three different countries.

Another project - also using data supplied by satellite - has made it possible to develop an operational system to aid



The MEFISTO project has developed a forest fire simulator which anticipates how a fire is going to spread in real time.

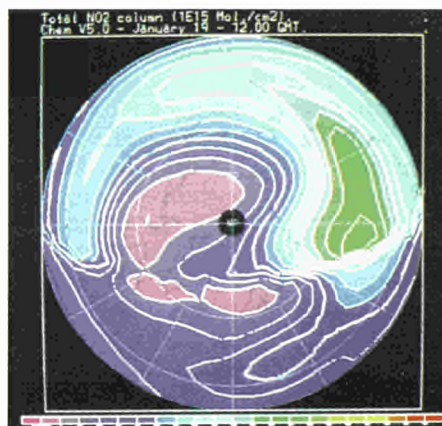
fire fighters in making crucial decisions. This project, coordinated by the Ecole des Mines in Paris and bringing together four other European research centres, is able to detect the outbreak of a fire in real time and then provide decision-making assistance. When a fire is detected, the map of the area concerned appears on screen, precisely pinpointing the site of the fire. The system then estimates how the fire is going to spread and calculates the time required for the nearest team of fire fighters to reach the blaze.

A further project, which is still running, is seeking to develop techniques for the restoration of areas destroyed by fire. Finally, a Franco-Greek team is currently engaged in research to measure the relative level of risk of a given region to help the authorities take the appropriate measures. This study is based on evidence that the vegetation's sensitivity to fire is proportional to the emission of essential oils and other chemical and volatile compounds. Scientists are also developing methods designed to help the authorities to establish sensor networks in order to monitor risks in a given zone and automatically update the maps of risk areas.

4. What is mankind's influence on global changes which can be predicted on a planetary scale?

An evaluation of the data available at present "suggests that there is now a discernible human influence on the climate". This is one of the main conclusions of a scientific report recently published by the Intergovernmental Panel on Climate Change (IPCC), chaired by Professor Bert Bolin (Sweden). The conclusions of this report - based on scientific work funded by the Commission - and all questions related to climate change were the subject of a seminar held in Brussels on 13 and 14 May.

Entitled "Climate and ozone", the conference was attended by European climate experts. It highlighted the scientific breakthroughs achieved in this field thanks to a number of projects funded by the Commission. These projects stress the impact of human activity on the greenhouse effect. The results of one of these projects now allow us to simulate developments in the earth's climate: if present trends continue, the average temperature on the earth's surface will have increased by approximately 3°C by the end of the next century. ▶



The measurement campaign carried out in the Arctic stratosphere (EASOE) has made it possible to establish models of the distribution of gases influencing the ozone layer.

Between 1991 and 1992 a vast measurement campaign was launched in order to gather data on the ozone layer above Europe and the Arctic. Known as the EASOE (European Arctic Stratospheric Ozone Experiment) project, it discovered that the ozone concentration over Northern Europe had fallen to the lowest level ever recorded. The researchers estimated that the ozone layer would be further reduced in the future as large quantities of CFCs released in the past would remain in the atmosphere for hundreds of years. A new measurement campaign was launched in January 1994, just as strategic and important as the previous one. Called SESAME (Second European Stratospheric Arctic and Mid-latitude Experiment), this project is still running and will try to provide a new evaluation of the present situation and development of the ozone layer above Europe.

A GLOBAL RESPONSE TO A GLOBAL PROBLEM

Although uncertainties remain regarding the seriousness of climate change - and the IPCC's report again stresses the need to increase scientific research in this crucial area - corrective measures can already be taken, as the experts at the Brussels conference pointed out. Among the range of measures proposed, energy saving is the most urgent strategy. Professor Paul Crutzen (Germany), winner of the 1995 Nobel Prize for Chemistry, stressed that this was a global problem which required a global response: it is not only cars and industrial production in the industrialised countries which produce greenhouse gases (CO₂, N₂O, methane, tropospheric ozone). The burning of the tropical biomass also plays a major role in the world's global atmospheric chemistry and is particularly significant for the ozone concentration in the troposphere.

Scientists advocate genuine cooperation between the developed and developing countries in this area. They also want to increase the dialogue with the world's politicians. The IPCC's report is a first step in this direction, as it is addressed to the decision-makers and is very much the fruit of a series of meetings involving all the interested parties. ■

Training & Mobility of Researchers

COMMISSIONER CRESSON INAUGURATES THE "MARIE CURIE FELLOWSHIPS"

Conference organised by DG XII, with the participation of distinguished personalities from the world of science and technology and current Marie Curie Fellows.
Brussels, Belgium, 17-18 October 1996

The new Fellowship will provide a distinct and unique identity for the beneficiaries of all the EU Research Training Grants.

150 representative current holders of EU Research Training Grants have been invited to participate in this 2-day conference.

An estimated 5,000 European researchers who have been beneficiaries of a Community research fellowship will also be able to style themselves as Marie Curie Fellows.

Discussions will position the scope and objectives of the Marie Curie Fellowship Association in the context of foreseeable future trends in science and research. ■

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Finland

8TH EU CONTEST FOR YOUNG SCIENTISTS

At the end of September, some 73 participants from over 20 European countries were in Helsinki, Finland, to take part in this 8th European Union Contest for Young Scientists.

Selected as winners of the national competition held in their own country, they competed for the following European prizes that were presented by the President of the Republic of Finland, Martti Ahtisaari: 3 first prizes worth 5,000 ECU, 3 second prizes worth 3,000 ECU, 6 third prizes worth 1,500 ECU.

From 4-11 December 1996, the winners will also be invited to the Stockholm International Youth Science Seminar, where they will participate in the 1996 Nobel Prize ceremonies. ■

Reference Brochure

NEW EDITION - EC RESEARCH FUNDING - A GUIDE FOR APPLICANTS

What research programmes are implemented by the European Community? How does one participate? Where is the information available? Whom should one contact in order to obtain advice and assistance? How can partners be found? How can the chances of success be optimised?

All these questions are answered by the fourth edition of this basic brochure - better known as the "Blue Guide" - aimed to give both comprehensive and practical information on all aspects and procedures of the Community research programmes.

"EC research funding - a guide for applicants" is the broadest, most complete document available on European RTD. It is of interest to all partners - small and large companies, universities, research centres - hoping to participate in collaborative projects with a European dimension. ■

EC research funding A guide for applicants

ISBN 92-827-5668-8, ± 200 pages,
price: 20 ECU

Obtainable from Office for Official Publication of the European Community
Luxembourg, Fax: +352 488.573



Exploring the depths of our seas and oceans



It was back in 1989 that the European Commission started to finance a programme devoted entirely to research activities in our seas and oceans. Grouped within the MAST (Marine Science and Technology) programme, the projects supported seek to provide the scientific bases for the sustainable exploitation of marine systems and to determine their precise role in global change. At mid-term in MAST III (1994-1998), last June the European Commission published a call for proposals⁽¹⁾, with two deadlines for the submission of projects: 15 October 1996 and 15 January 1997, according to the fields in question.

This call concerns three aspects of the programme: marine sciences (the understanding of the processes governing marine systems), strategic marine research (the development of management and

protection concepts permitting the sustainable development of the marine environment in our coastal waters and on the continental shelf) and marine technology (with the aim of developing generic technology for the monitoring, exploitation and protection of the marine system). A fourth aspect is devoted to "supporting initiatives". These play an essential supporting role in research - in coordinating activities and results, the advanced training of specialists, the exchange of oceanographic data, etc.

Since it was launched seven years ago, interest in this field of research has succeeded in gaining increasing recognition. MAST, originally a pilot project, with a budget of ECU 50 million for the period 1989-1990, has progressively broadened its activities. Major regional projects, in particular, have made it possible to build up a genuine European scientific community in this field. Today, MAST III has a budget of ECU

243 million and forms part of the 4th Framework Programme for research and technological development (1994-1998). So far, it has launched some sixty projects, all characterised by a very high scientific and technical level. ■

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(1) Official Journal of the European Communities, N°C 110/15 - 16.4.96



On the occasion of the European Conference on underwater acoustics - held last June in Greece - the Commission co-published an 800-page reference book listing European research results. Underwater acoustics is a scientific and technological field which is of great importance to monitoring and using the marine environment.

Examples of MAST projects

In the field of marine technology, there have been several projects in the area of sub-marine acoustics, an essential technology for the study and exploitation of the marine environment as it is the only means of underwater communication. A conference organised on the subject by the European Commission from 24 to 28 June in Heraklion (Greece) allowed an assessment of the current state of progress of research and its applications. One such research project, the BASS project, is studying the response of shoals of fish to underwater sound signals. This research should make it possible to quantify the impact of fishing and environmental changes.

Still in the field of marine technology, the development of underwater measuring and observation instruments is a sub-

ject which has attracted many project proposals. The aim is to develop devices able to take continuous measurements of a number of parameters in real time.

There are also many projects in the field of "marine sciences", three of them concerned with scientific cooperation on a wide regional level:

- MATER, which is to start up shortly, mobilises 56 research institutes from 13 countries (10 European countries plus Morocco, Tunisia and Switzerland). Scientists are seeking to detect global climate changes by means of advance indicators in the waters of the Mediterranean. With a budget of ECU 10.5 million, MATER follows on from the MTP project under MAST

II. It is the largest multidisciplinary research project to have been conducted in the Mediterranean to date.

- Another project will be looking at the ecosystem of the Baltic Sea. Fifty partners are working on this project (36 from the Member States and Norway and 14 from third countries bordering the Baltic Sea). The European Commission is providing ECU 8.9 million in funding.

- Finally, mention must also be made of ESOP II, the second phase of an ambitious project studying currents in the Greenland Sea. Research will concentrate on the circulation of the Gulf Stream, changes to which could have significant effects on Europe's climate. ■



Networks of scientific excellence developed by COST

Water - indispensable for life - and water management have become a European priority. During the last twenty years, environmental protection under conditions of sustained development has developed into one of the most crucial questions for human survival. To tackle problems such as water protection and the rational use of water on a European or even international basis, cooperation and coordination between national research efforts is essential.

COST (European Cooperation in the field of Scientific and Technical Research), which aims to stimulate cooperation and coordinate national research projects and programmes, has taken a step in this direction. Several targeted networks, known as COST Actions, have been created with objectives in the field of groundwater protection and water quality, pesticides and waste water management, and the diagnosis of urban water infrastructures.

Groundwater is the most important drinking water resource in Europe. It is an essential part of the global and regional water cycle and therefore a vital part of our ecosystems. Karstic aquifers, the subject of COST Action 65, are of outstanding importance to the water supply. Carbonate rocks cover a large part (35%) of Europe, about 3 million square kilometres, much of which is karstic. Large areas of countryside and some big cities, such as Vienna, Paris or Rome, are totally dependent on these sources for their water supply.

COST Action 65, launched in 1991 and finished in 1995, mobilised researchers from 16 European countries and produced a comprehensive report⁽¹⁾ setting out recommendations for regulations, protection schemes and sustainable management, based on de-

tailed national studies. Guidelines provided a synopsis of the results for decision-makers and considerable importance was given to boosting public awareness of the fact that "water is life".

The future direction of cooperation will be twofold:

- Karstic aquifers require very particular protection, so efforts will be made to harmonise 'vulnerability mapping' in European countries, taking into account potential risk maps.
- The establishment of criteria for improving groundwater resource utilisation in coastal karstic aquifers and the creation of an international net of reference points for national water authorities.

But COST expertise does not stop with karstic aquifers.

- Already, between 1979 and 1984, the 11-country COST 72 network was implementing a European research project on the measurement of precipitation by radar, which led to the establishment of a European weather radar network.

- Other ongoing activities are concerned with "Pesticides in the Soil and Environment" (COST 66) and "Water Quality Protection in Porous Media" (COST 67), within which 18 and 14 countries, respectively, including the JRC Environment Institute in Ispra, are coordinating their efforts.

- The objective of COST 68 is the establishment of an optimised European integrated wastewater management, while the Urban Civil Engineering COST Action C3 on "Diagnosis of Urban Infrastructures" dedicates a large part of its activities to water management. ■

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(1) See p. 13, for the reference of the final report on the studies carried out as part of COST Action 65.

COST in brief

With its emphasis on pre-competitive research, national government financing, open participation and the initiating role of scientists, COST plays its part in a coherent structure for European research, complementing the EU Framework Programmes and EUREKA.

COST cooperation, established in 1971, takes the form of concerted Actions - essentially the coordination of national research projects and programmes. These focus on specific

themes which are targeted by participating countries according to their research priorities. Its bottom-up approach has helped attract over 5,000 scientists to participate in well over 130 Actions in fields ranging from Chemistry to Telecommunications and the Social Sciences. 25 European countries participate in COST, plus the European Commission. ■

More information may be obtained by accessing the World Wide Web pages <http://www.cordis.lu/cost/home.html>.