

COMMISSION OF THE EUROPEAN COMMUNITIES

# INFOGUIDE

Guide to sources of  
information on European  
Community research





**INFOGUIDE**

**Guide to sources of information  
on European Community research**

**1992**

The INFOGUIDE has been compiled by ECOTEC Research & Consulting Ltd., Brussels, on behalf of the Dissemination of Scientific and Technical Knowledge Unit, Directorate-General Telecommunications, Information Industries and Innovation, Commission of the European Communities, Luxembourg, as part of the European Community's VALUE programme for the dissemination and utilization of scientific and technical information.

Commission of the European Communities

**INFOGUIDE**

**Guide to sources of information  
on European Community research**

Directorate-General  
Telecommunications, Information Industries and Innovation

Dissemination of scientific and technical knowledge unit

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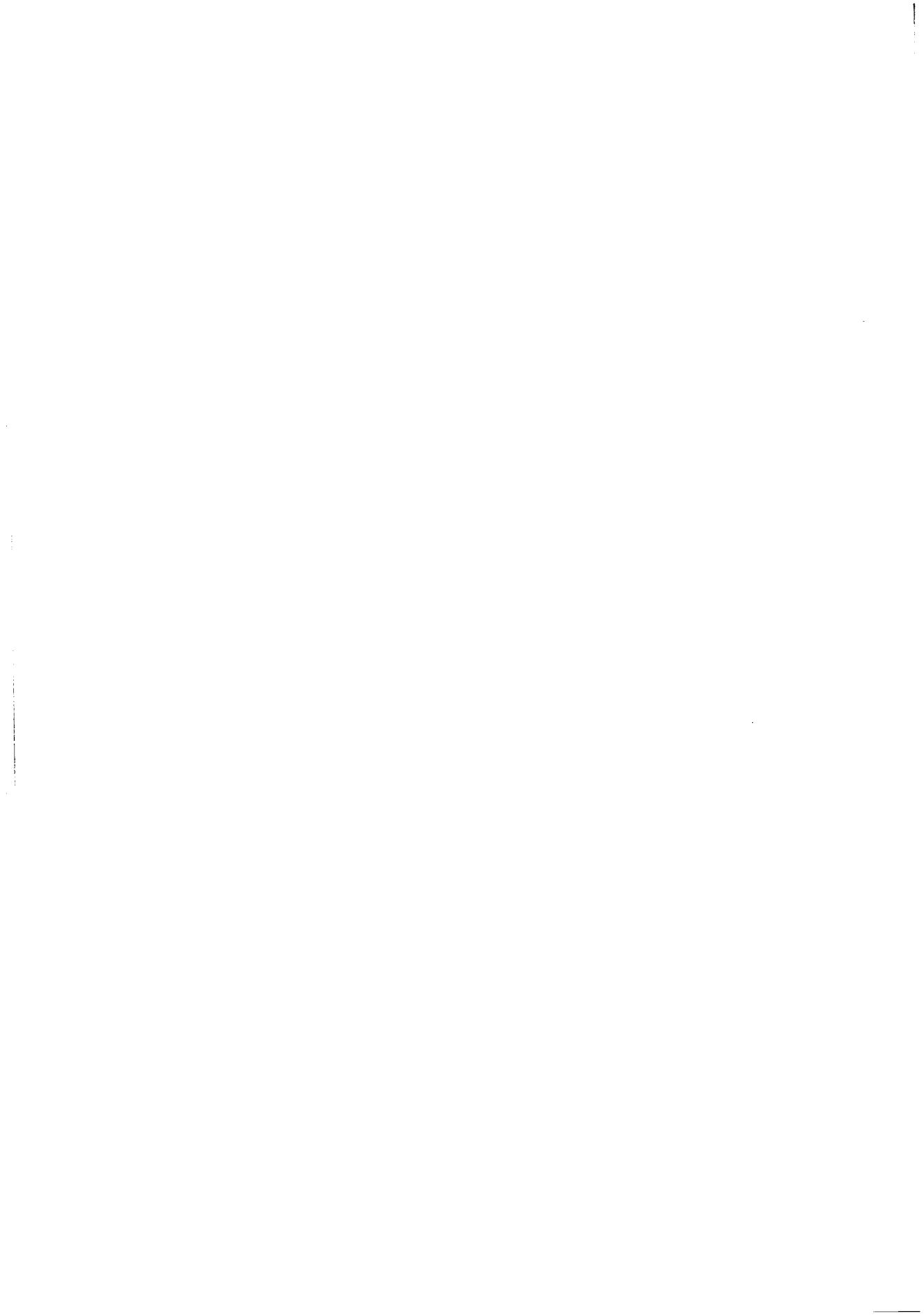
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**Preface**

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Those of us responsible for implementing the European Community's research programmes often hear it said that there is a shortage of publicly available information on them and on their results. In fact the opposite is the case. There exists an abundance of technical reports, programme summaries, proceedings of conferences and other types of document - so many that the Commission of the European Communities is one of the most prolific of European scientific and technical publishers. There are also many "non-paper" sources of information such as databases, telephone services known as "help desks", and audiovisual material.

I would however accept that the existence of this information is not sufficiently well known. Moreover, it is not always easy to locate the information which is being sought. There are a number of reasons why this should be so. There is the understandable, but misguided, tendency to consider as wasted any part of the resources earmarked for a research programme that has been diverted to the dissemination of information. Researchers naturally prefer to spend research money on research, not on paper and printers' bills. There is the wide variety of disciplines covered by the European Community programmes, the various programmes often following the different dissemination routes traditional to each discipline. Finally there is the problem that is common to all activities of the European Community, not just research - how to ensure that information reaches all potentially interested parties, in all corners of the Community.

Fortunately the importance of the dissemination process in ensuring that the maximum possible benefit is obtained from research was recognised in the second of the European Community Framework Programmes for research and technological development. The second Framework Programme, running from 1987 to 1991, includes a provision for the dissemination and utilization of information about the research undertaken in the Framework Programme and the results obtained. This has led to the launching in mid-1989 of the VALUE programme, which has amongst its aims improvements in the dissemination of information on Community research programmes and their results. This aspect of the VALUE programme is executed by the Dissemination of Scientific and Technical Knowledge Unit of the Directorate-General Telecommunications, Information Industries and Innovation.

This guide to sources of information on European Community research, compiled by the Unit which I have just mentioned, is one of the products of the VALUE programme. The guide's objective is to show how information on European Community research

and its results can be located. It does this by identifying "key" publications which can be used as starting points for deeper searching. It also gives details of the newsletters that are issued by many of the programmes. Information on how to obtain the publications and subscribe to the newsletters is given. The various European Community databases and other information services in the area of science and technology are covered, again with details of methods of access.

The guide was compiled at a time when the second Framework Programme for research and technological development was well under way, and the third Framework Programme - its successor - was in the early phases of its implementation. At this stage, final decisions had not yet been taken on some of the individual specific programmes which make up the third Framework Programme. As a result, the brief descriptions of the research activities of the European Community which the reader will find throughout the guide refer to the second Framework Programme and earlier programmes. This also reflects the fact that it is too early for any substantial amount of information to have been generated by the third Framework Programme, whereas the second Framework Programme is in full swing and well into the phase of generating results. Readers wishing to follow the progress of the third Framework Programme will however be able to do so through several of the newsletters and database services, providing continually updated information, listed in this guide.

I hope this guide will prove useful in increasing awareness of the mass of information being generated by the research programmes, and that it will contribute to the achievement of the fundamental aims of the programmes - to make European industry more competitive internationally, and to strengthen economic and social cohesion in the Community.

A. Strub

Director for exploitation of research and technological  
development, technology transfer and innovation  
Commission of the European Communities

*Luxembourg*  
*November 1991*

## **□ Research Activities of the European Community □**

Cooperation in research and technology is a vital component in the construction of the European Community. Without the backing of strong research programmes, European industry cannot be sufficiently innovative to be competitive in world markets. European Community (EC) countries also have in common many problems which require a research effort and this research is much more efficient if it is tackled in a coordinated way, rather than piecemeal by a series of unrelated national programmes.

The Community has had a research identity from its earliest days. At first this was concentrated in three industrial areas - nuclear power, coal and steel. Through the work performed under the Euratom Treaty, there existed a European approach to nuclear energy research. Similarly the European Coal and Steel Community (ECSC) was a major player in research for the coal and steel industries. As the EC developed and grew, it began to tackle the wider problems of society and to be concerned with the environment, medicine and public health. Research programmes were set up to investigate the issues that arose. Interest spread into new areas of science and industry, such as informatics, telecommunications, biotechnology, materials and non-nuclear energies. The first Framework Programme (1984-87) was introduced to coordinate existing research activities, to provide a "framework" for medium-term planning and to foster European scientific and technological cooperation.

The Single European Act of 1987 has given a further impetus to this initiative by establishing formally a research and technological development policy for the European Community. The role of the second Framework Programme (1987-90) is to implement this policy, in eight broadly defined focal areas. However, there is no intention to replace or supplant national, public or private research in the Member States. Rather, the programmes concentrate on basic and precompetitive research, leaving industrial participants to proceed if they so wish to the stage of commercial product development.

The Framework Programmes often include projects which, for reasons of cost, scale or efficiency, are

best handled at EC level. Some, such as the fusion energy programme, are so long-term and large-scale that international support is essential. Others handle problems such as air or water pollution, which are common to many Member States, where transnational cooperation at once avoids duplication of effort and gains added-value from the synergy of experiences. Yet other projects, such as those dealing with innovation in telecommunications and information technology, and work on materials technologies, are particularly important in the context of the single internal market, and contribute to the competitiveness of European industry world-wide.

Many research programmes falling outside the Framework Programme are nevertheless related to it or supportive of its activities. Education and training programmes and programmes supporting the mobility of students and researchers throughout Europe and elsewhere provide benefits both for the people concerned and for the work that they do, as well as acting as a means for technology transfer and dissemination of research results. Demonstration projects in the energy and environment fields take the results of basic research a stage closer to commercial exploitation. Although the research activities of the ECSC relate primarily to the coal and steel industries, many of the problems investigated (safety, ergonomics, occupational health) run parallel to similar studies in Framework Programmes. Similarly, COST (European Cooperation in the field of Scientific and Technical research) projects do not form part of any Community R&D programme, and are open to all twenty European OECD countries; nevertheless their subject areas often relate closely to those in the Framework Programmes.

Community research work is carried out in several ways. Some is done at the EC's own Joint Research Centre, at its four sites in Ispra (Italy), Geel (Belgium), Karlsruhe (Germany) and Petten (The Netherlands). This work is wholly financed by the EC. The remainder is carried out through "shared-cost research" (costs shared between the EC and the research contractors involved) and through "concerted" projects (only the coordination activities being

funded by the EC, all research costs being borne by the participants). The majority of contracts and funding go to "shared cost" activities. The research and research-related programmes are managed by the Commission of the European Communities (CEC). Most of the programmes are the responsibility of the Commission's Directorate-General XII (Science, Research and Development) or DG XIII (Telecommunications, Information Industries and Innovation). Others are managed by DG VI (Agriculture), DG VII (Transport), DG XI (Environment, Nuclear Safety and Civil Protection), DG XIV (Fisheries) or DG XVII (Energy).

The third Framework Programme (1990-94) overlaps the second by two years. The individual programmes agreed under the second Framework Programme will continue to run their full course, but new and wider objectives have been introduced into the third programme, to update Community research activities in the light of the rapid technological advances made since 1987. The focal areas are now redefined as:

- enabling technologies
- management of natural resources, and
- management of intellectual resources.

While the amount of funds allocated to information and communication technologies remains high, at around 40% of the total budget, the allocation for energy research (nuclear and non-nuclear) has dropped from about 22% to just over 14%. Investment in environmental and life sciences research has increased, as has the funding under the headings human capital and mobility. The effects of this are reflected in the specific programmes recently approved under the umbrella of the third Framework Programme.

Another trend clearly identifiable under the second and third Framework Programmes is the increasing importance laid on the dissemination of information. The proportion of funding allocated to this activity increased from 1:141 in the second to 1:99 in the third programme. There is a wide range of different arrangements for the dissemination of research results. In some programmes, projects have been set up for the specific purpose of dissemination of results and other information. In other programmes, particularly those involving "concerted" research activities, individual contractors have the responsibility for disseminating results of

their own projects. This is generally done through the medium of articles in journals, reports published by the institution concerned or papers presented at coordination meetings. Some programmes make a wide range of publications available in the public domain while others prefer to disseminate information mainly amongst participants in the programme. In addition, some programmes prepare videos, issue newsletters, provide on-line information in data banks or hold regular conferences and seminars, details of which are included in this book.

Many research reports, and other types of information from and about the programmes, are published through the Dissemination of Scientific and Technical Knowledge Unit (DG XIII/C-3). This unit provides a publishing service for all research and research-related programmes, irrespective of the Directorate-General which manages them. It also coordinates the available information, through the publication of catalogues and an abstracting journal, and the provision of an on-line information service on Community research. More details of the services provided by the unit are given in chapter 1. The research reports and other publications which it issues are available from the Office for Official Publications of the European Communities (OOPEC). In some cases reports of particularly wide interest may appear as books from scientific and technical publishing houses.

In addition, evaluation reports are prepared for the Commission after the completion of a programme, which assess all aspects of the programme results, management and effectiveness.

Because of the multiplicity of dissemination channels involved, it can sometimes prove difficult to discover where information on a particular research area may be found. This is particularly the case for persons unfamiliar with the structure and content of the programmes. The aim of this book is to suggest ways in which this information may be located and obtained. Following a brief explanation of how the book is organised, the first chapter describes the broad sources of information covering all areas of scientific and technological research; thereafter each chapter is devoted to a specific subject area. In searching for information in a specific area, it is important to consult the first chapter as well as the chapter dealing with the relevant subject.

## **The organisation of this book**

The European Community makes available a wide range of information on RTD programmes, projects and results, in many different forms. The purpose of this book is to provide a quick reference guide to the most important sources of such information, particularly those which are regularly updated and widely available. In this context, "the most important sources" are those which provide a broad overview of recent RTD activities or which provide a means of access to other, more narrowly focused, information.

Since the guide is aimed at all those interested in RTD - researchers, industry, the general public and decision-makers - the material included has been selected to give the broadest possible coverage of key information sources. The source media described are typically :

- help desks
- databases
- videos
- annual reports
- major conference proceedings
- newsletters or journals
- final reports of programmes
- programme evaluation reports
- series of reports
- books
- catalogues of projects and contractors
- catalogues of publications.

The first chapter of this book describes certain sources which provide information over a broad range of RTD subject areas. Many of these sources are departments within EC institutions, part or all of whose function is the dissemination of information. The role of each one is described and its main publications, databases or other media of dissemination are listed. Later chapters each cover a specific technical subject area, describe EC programmes rather than institutions and provide listings of information sources relevant to that area.

The subject areas are chosen on the basis of the major categories of the classification scheme used by CORDIS (Community Research and Development Information Service; see chapter 1). A copy of this classification can be found in Annex A.

Since the volume of activity and information sources is much greater in some areas than others it has been found helpful to subdivide three of the CORDIS categories. The area "Information Technology and Telecommunications" has been removed from the field of "Industry and Technology" to form a separate chapter. The category "Energy" has been divided into work on nuclear and non-nuclear energies. The category "Protecting Man and his Environment" has also been split into its two constituent parts, protecting man and protecting his environment.

For each chapter, information is summarised diagrammatically on the first page, for quick and easy reference. In the subsequent text, the scope of each programme included on the diagram is outlined, and reference made to other programmes whose activities, though not primarily in the relevant area, are related to it. This is followed by the catalogue of relevant information sources.

The catalogue listing includes a short description of each information source and its availability in the various Community languages, together with details of how to obtain the printed publication, or to obtain access to the database or help desk. Telephone numbers are only given for help desks. In other cases an initial contact by letter or fax is preferred. Symbols are used to indicate the broad type of information source media, as follows:-



newsletter or journal



database



report, catalogue or book



series of reports



help desk or office



videotape

The contact addresses, and where possible fax numbers, are indicated in the description of each information source. Where reports are available from OPEC, any order requesting copies of publications should mention the report numbers (e.g., EUR 12345) and the languages required as well as the title of the report and the name of the author. Orders should be addressed to one of the sales agents listed on the back cover of this guide, or may be placed on-line through CORDIS. Some but not all of these EUR-reports are available free of charge.

*Sample entry:*

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 **IRDAC NEWS**

The Industrial R&D Advisory Committee (IRDAC) of the CEC publishes a quarterly newsletter, IRDAC NEWS. This covers topics such as the third Framework Programme (1990-1994), the activities of IRDAC Working Parties, a calendar of IRDAC events, IRDAC membership and issues related to IRDAC functions.

Contact IRDAC NEWS Office, 1 rue Defacqz, Box 12, B-1050 BRUSSELS, Belgium : fax + 322 344 12 70

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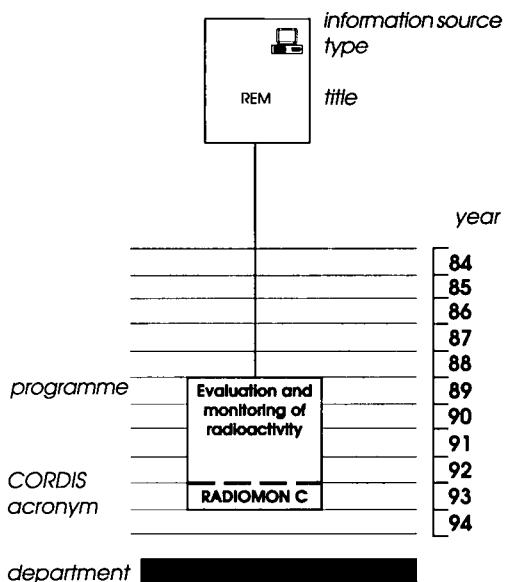
The diagrammatic summary of each chapter shows the duration of each RTD programme active during the period 1984-94 whose concerns lie mainly in the defined subject area. These are grouped according to the Directorate-General (DG) or other EC department responsible. A cut-off point has been taken at the end of the second Framework Programme: programmes recently proposed for the third Framework Programme do not appear.

The CORDIS acronym is indicated in the lower part of each box on the diagram; this often differs from the programme title shown above. The CORDIS acronym is a short form of the title used to identify the programme in the Community Research and Development Information Service series of databases on the ECHO Host (see chapter 1). Further information about any programme - the size of its budget, a full statement of its aims and much else that is not included here - is available on the RTD-Programmes database, which is part of CORDIS.

The key information sources for RTD activities within the subject area are divided into those emanating from the programmes, which are shown above the centre band, and those more general sources emanating directly from one of the DGs or other departments, which are shown below the band. Each information source is identified by its title and a symbol indicating in what form the information is available if this is other than a single printed publication - ie. newsletter, database, series of reports, help desk or video.

*Sample entry:*

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Two indexes are provided. The first lists Community RTD programmes. The second lists the titles of the information sources, grouped according to their type, newsletter, database, and so on. In addition, annexes provide lists of the CORDIS subject categories, and the meanings of the abbreviations commonly used in the text.

It is hoped that the reader will be able to locate swiftly the information required. We would welcome comments and suggestions from our readers on this, or any other, matter concerning the presentation of information in this book.

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**□ 1. Broad Sources of Information □**

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## **□ 1. Broad Sources of Information □**

The purpose of this chapter is to identify those sources which can provide information on a broad range of research and technological development (RTD) activities. Certain sources, such as the CORDIS databases, are devoted solely to RTD activities; some such as the Euro-Info-Centres or the SCAD database, cover the whole range of EC activities, of which RTD forms only a part. Other more specific information sources, related to a single subject area, technology or EC programme, will be described in the later chapters of this book under the appropriate subject headings.

The sources described in this chapter fall under six different headings. Under each heading is described the role and function of the responsible managers and producers. An outline of their activities is followed by a list of the information sources provided.

### **Dissemination of Scientific and Technical Knowledge Unit**

The Dissemination of Scientific and Technical Knowledge Unit of DG XIII/C-3 has a responsibility to disseminate information on Community RTD activities and their results, and to promote the uptake and application of these results. This is achieved through a variety of publications, a help desk, and through the CORDIS (Community Research and Development Information Service) databases.

Regular news and information updates are provided by four publications in particular. The *Innovation and Technology Transfer* newsletter contains news of both proposed and on-going research programmes. The *Euroabstracts* journal gives abstracts and details of availability of between one and two hundred new publications every month. These include annual, final and evaluation reports of RTD programmes, proceedings of conferences, workshops and contractors' meetings, reports, articles and oral papers describing the results of individual projects, and scientific books published for the EC by commercial publishers. DG XIII/C-3 also issues a catalogue of publications on RTD, *Research Publications*, in-

dexed by subject and with additional titles and author indexes. The quarterly brochure *Publications on Science and Technology* describes a selection of these publications.

The recently installed *RTD Help Desk* of DG XIII/C-3 offers assistance in locating sources of detailed information (such as publications and contact persons) on the research activities of the EC. Enquirers may contact the help desk by letter, telephone or fax.

DG XIII/C-3 is also responsible for publishing the quarterly journal *Progress in Coal, Steel and Related Social Research*, which provides a regular review of activities and publications in these sectors.

CORDIS offers a comprehensive set of electronically accessed databases providing information on Community RTD programmes and projects, from their preparatory stages to their execution and finally the publication of their results. The databases which currently make up the CORDIS information service are:-

- RTD-Programmes, providing information on all Community research and related programmes
- RTD-Projects, giving details of individual contracts and studies, and the organisations involved within the various programmes;
- RTD-Publications (also known as the EABS database), which provides bibliographic information and abstracts of publications, reports and scientific papers arising from Community research activities;
- RTD-Results, providing information on specific results and prototypes. It also includes information on results from European R&D projects outside EC programmes, supplied to the database on a voluntary basis;
- RTD-ComDocuments, giving details of ComDocuments on or related to RTD activities. ComDocuments are Commission communications to the Council of Ministers and the European Parliament, so this database is a valuable source of information on programmes still in their preparatory stages;

- RTD-Acronyms, a dictionary of abbreviations and acronyms to do with Community research programmes and projects;
- RTD-News, which contains announcements such as Calls for Proposals and Calls for Tenders, and other news items from Commission departments involved in RTD activities;
- RTD-Partners, for identifying suitable partners for the submission of proposals for projects to be supported under Community funds, and for the exploitation of RTD results;

- all of which are constantly being reviewed and extended. Although CORDIS is primarily concerned with the Framework programmes, it also covers other related programmes in areas such as energy, the environment, training and education, information science and regional development. Access to the CORDIS databases is available (to registered subscribers only) free of charge through ECHO, the European Community Host Organisation.



### Innovation and technology transfer

Contact CEC, DG XIII/C-3, Bâtiment Jean Monnet, L-2920 LUXEMBOURG : fax + 352 4301 41 29  
English



### Euroabstracts

Contact DG XIII/C-3 for information or sample copies: available on subscription from OOPEC Spanish-Danish-German-Greek-English-French-Italian-Dutch-Portuguese



### Research Publications 1989-1990

EUR 13565	188 pp.
Contact OOPEC	
Spanish-Danish-German-Greek-English-French-Italian-Dutch-Portuguese	
	ECU 16.25



### Publications on science & technology

Contact CEC, DG XIII/C-3, Bâtiment Jean Monnet, L-2920 LUXEMBOURG : fax + 352 4301 41 29  
English



### Progress in coal, steel and related social research

Contact DG XIII/C-3 for information or sample copies: available on subscription from OOPEC English



### RTD help desk

Contact CEC, DG XIII/C-3, Bâtiment Jean Monnet, L-2920 LUXEMBOURG: tel. + 352 4301 31 61; fax +352 4301 20 84  
FREE



### CORDIS service

Contact ECHO Customer Services, Airport Centre, 5, rue Höhenhof, LUXEMBOURG-Sennengerberg/ECHO Help Desk: tel + 352 34 98 11 : fax + 352 34 98 12 34  
English



### RTD-Programmes database

Contact ECHO Customer Services, Airport Centre, 5, rue Höhenhof, LUXEMBOURG-Sennengerberg/ECHO Help Desk: tel + 352 34 98 11 : fax + 352 34 98 12 34  
English  
FREE



### RTD-Projects database

Contact ECHO Customer Services, Airport Centre, 5, rue Höhenhof, LUXEMBOURG-Sennengerberg/ECHO Help Desk: tel + 352 34 98 11 : fax + 352 34 98 12 34  
English  
FREE



### RTD-Publications (EABS) database

Contact ECHO Customer Services, Airport Centre, 5, rue Höhenhof, LUXEMBOURG-Sennengerberg/ECHO Help Desk: tel + 352 34 98 11 : fax + 352 34 98 12 34  
Titles may be in Spanish,Danish,German,Greek, English, French, Italian, Dutch, Portuguese: abstracts in English only  
FREE



### RTD-Results (Proteas) database

Contact ECHO Customer Services, Airport Centre, 5, rue Höhenhof, LUXEMBOURG-Sennengerberg/ECHO Help Desk: tel + 352 34 98 11 : fax + 352 34 98 12 34  
English  
FREE



### **RTD-ComDocuments database**

Contact ECHO Customer Services, Airport Centre, 5, rue Höhenhof, LUXEMBOURG-Senningerberg/ECHO  
Help Desk: tel + 352 34 98 11 : fax + 352 34 98 12 34  
English FREE



### **RTD-Acronyms database**

Contact ECHO Customer Services, Airport Centre, 5, rue Höhenhof, LUXEMBOURG-Senningerberg/ECHO  
Help Desk: tel + 352 34 98 11 : fax + 352 34 98 12 34  
English FREE



### **RTD-News database**

Contact ECHO Customer Services, Airport Centre, 5, rue Höhenhof, LUXEMBOURG-Senningerberg/ECHO  
Help Desk: tel + 352 34 98 11 : fax + 352 34 98 12 34  
English FREE



### **RTD-Partners database**

Contact ECHO Customer Services, Airport Centre, 5, rue Höhenhof, LUXEMBOURG-Senningerberg/ECHO  
Help Desk: tel + 352 34 98 11 : fax + 352 34 98 12 34  
English FREE

## **Other on-line services and database hosts**

There exist several database hosts, which offer access to a wide variety of databases. In addition to CORDIS, other specialist databases available on ECHO include: -

- BIOREP (biotechnology projects)
- I'MGuide (see below)
- DOMIS (materials)
- EUREKA (see below)

which are all described in this or later chapters of this book. Information about ECHO is available from the ECHO Customer Service and Help Desk and through the quarterly newsletter, which is distributed automatically to all ECHO subscribers, free of charge.

I'MGuide, previously known as Dianeguide, is a database providing information on databases and databanks, database producers, host organisations, CD-ROMs, PTT contact points, gateways and information brokers in Europe. I'MGuide is available via natural language access, menu access and the Common Command Language (CCL); the same material is also available in a printed

form as an inventory of the information services market. The on-line database is updated every two weeks.

The Eurobases host provides on-line access to six databases: -

- CELEX (EC law)
- ECLAS (bibliographic database of the Commission Library)
- INFO 92 (completion of the internal market)
- RAPID (text of press releases from the EC Spokesman's Service)
- SCAD (details of official documents and articles from journals)
- SESAME (energy demonstration projects/ hydrocarbon technology).

The SCAD database is also available in printed form as the SCAD *bulletin*, issued fortnightly.

The EuroKom Service is an electronic mail, teleconferencing and file transfer service. It was originally set up to provide group communications and information sharing facilities for participants in the ESPRIT programme, but is now publicly available.



### **ECHO customer service**

Contact ECHO Customer Services, Airport Centre, 5, rue Höhenhof, LUXEMBOURG-Senningerberg/ECHO  
Help Desk: tel + 352 34 98 11 : fax + 352 34 98 12 34  
English FREE



### **ECHO news**

Contact ECHO Customer Services, Airport Centre, 5, rue Höhenhof, LUXEMBOURG-Senningerberg/ECHO  
Help Desk: tel + 352 34 98 11 : fax + 352 34 98 12 34  
English FREE



### **Inventory of European Commission Information Services Market**

Contact ECHO Customer Services, Airport Centre, 5, rue Höhenhof, LUXEMBOURG-Senningerberg/ECHO  
Help Desk: tel + 352 34 98 11 : fax + 352 34 98 12 34  
English



### **EUROBASES help desk**

Contact CEC, Eurobases, 200 rue de la Loi, B-1049 BRUSSELS, Belgium : tel + 322 235 0001/0003 : fax + 322 236 06 24



Contact CEC, Eurobases, 200 rue de la Loi, B-1049 BRUSSELS,  
Belgium; fax +3222360624  
English/French

#### SCAD bulletin



Contact OOPEC

Spanish/Danish/German/Greek/English/French/  
Italian/Dutch/Portuguese

FREE

#### EuroKom



Contact EuroKom, UCD Computer Centre, Belfield,  
DUBLIN 4, Ireland : fax + 353 12 83 86 05

### The Joint Research Centre (JRC)

The JRC is an EC scientific and technical research centre, with four sites, in Belgium, Germany, Italy and the Netherlands, housing nine different institutes. The expert services and facilities available at the JRC, following the reform of its structure in 1988-89, are reviewed in the publication *Science and technology for Europe*. The most recent annual reports of the JRC and its constituent institutes, listed below, describe its research activities and developments in greater detail. Two other useful publications are produced annually. The first describes the training courses offered by the JRC and the second catalogues its output of scientific publications: technical reports, articles in periodicals and conference papers.



#### Science and technology for Europe

EUR 12417 EN 71pp.  
Contact CEC, Joint Research Centre, Public  
Relations Office, 21202 ISPRA (Va.), Italy  
English



#### Annual report of the Joint Research Centre 1990

EUR 13572 EN 104pp.  
Contact CEC, Joint Research Centre, Public  
Relations Office, 21202 ISPRA (Va.), Italy  
English



#### Annual report 1989: Institute for Prospective Technological Studies

EUR 13065 EN 12pp.  
Contact CEC, Joint Research Centre, Public  
Relations Office, 21202 ISPRA (Va.), Italy  
English



#### Annual report 1990 of the Central Bureau for Nuclear Measurements

EUR 13456 EN 88pp.  
Contact CEC, Joint Research Centre, Public  
Relations Office, 21202 ISPRA (Va.), Italy  
English



#### Annual report 1990: Institute for Transura- nium Elements

EUR 13815 EN 204pp.  
Contact CEC, Joint Research Centre, Public  
Relations Office, 21202 ISPRA (Va.), Italy  
English



#### Annual report 1990: Institute for Advanced Materials

EUR 13801 EN 196pp.  
Contact CEC, Joint Research Centre, Public  
Relations Office, 21202 ISPRA (Va.), Italy  
English



#### Annual report 1989: Institute for Systems Engineering and Informatics

EUR 13192 EN 57pp.  
Contact CEC, Joint Research Centre, Public  
Relations Office, 21202 ISPRA (Va.), Italy  
English



#### Annual report 1990: Environment Institute

EUR 13806 EN 102 pp.  
Contact CEC, Joint Research Centre, Public  
Relations Office, 21202 ISPRA (Va.), Italy  
English



#### Annual report 1989: Institute for Remote Sensing Applications

EUR 13032 EN 90pp.  
Contact CEC, Joint Research Centre, Public  
Relations Office, 21202 ISPRA (Va.), Italy  
English



### **Annual report 1989: Institute for Safety Technology**

EUR 12885 EN 110pp.  
Contact CEC, Joint Research Centre, Public  
Relations Office, 21202 ISPRA (Va.), Italy  
English



### **Annual report 1989: operation of the High Flux Reactor**

EUR 12881 EN 100pp.  
Contact CEC, Joint Research Centre, Public  
Relations Office, 21202 ISPRA (Va.), Italy  
English



### **Eurocourses 1990**

Contact Secretariat EUROCOURSES, Joint Research  
Centre, 21202, ISPRA (Va.), Italy :  
tel + 39 332 789 819/308 : fax + 39 332 789 839  
English



### **Publications Bulletin (10): 1990**

Contact CEC, DG XII, 200 rue de la Loi, B-1049  
BRUSSELS, Belgium : fax + 322 235 85 31  
English

## **Initiatives outside the Framework Programmes**

### **a) EUREKA**

The aim of the EUREKA initiative is to enable companies and research institutes to work together in the development of leading-edge technologies in all areas of science. EUREKA projects are often nearer the market than EC research projects and the members of EUREKA include the EFTA countries and Turkey as well as the CEC and its member states. EUREKA functions as a contact point, helping participants to locate partners, resources, funding and information on projects. This information is made available through the EUREKA database on ECHO, through the EUREKA Secretariat in Brussels and through its quarterly newsletter, *EUREKA News*.



### **EUREKA Vade mecum**

Contact EUREKA Secretariat, Avenue des Arts 19H,  
B-1040 BRUSSELS, Belgium : fax + 322 218 79 06  
English FREE



### **EUREKA database**

Contact EUREKA Secretariat, Avenue des Arts 19H,  
B-1040 BRUSSELS, Belgium : fax + 322 218 79 06  
English FREE



### **EUREKA news**

Contact EUREKA Secretariat, Avenue des Arts 19H,  
B-1040 BRUSSELS, Belgium : fax + 322 218 79 06  
Spanish, German, English, French, Italian

### **b) The European Coal and Steel Community**

The ECSC funds a variety of technical and social research programmes in the coal and steel sectors. These cover not only the technologies of processing and production and the development of new products but also investigations concerning industrial health and safety and the environmental impact of activities in these two sectors. Papers presented at the 1989 conference describe recent technological, environmental and medical research activities of the ECSC. The quarterly journal *Progress in Coal, Steel and Social Research* (see above) also provides a regular review of activities and publications in this area.



### **The ECSC in technological and social research: 26,27 and 28 April, 1989: Gijón (Asturias) Spain: Conference proceedings**

Contact CEC, DG V, BP 1907, Bâtiment Jean  
Monnet, Plateau du Kirchberg, L-2920  
LUXEMBOURG  
English, French, German, Spanish

### **c) European Cooperation in the field of Scientific and Technical Research (COST)**

The COST initiative exists to support and promote international cooperation between all twenty European OECD countries, over a wide range of scientific and technical areas. The national authorities concerned bear the RTD costs of the projects, whilst the CEC provides a technical secretariat for the coordination of activities. COST is currently active in the following eleven technological sectors:- informatics, telecommunications, transport, oceanography, materials, the environment, meteorology, agriculture and biotechnology, food technology, socio-technology and

medical research. The publications listed below describe the background to COST and review its activities and the results achieved.



#### A review of COST since its beginnings

EUR 11640 173pp.  
Contact OOPEC  
German,English,French ECU 13.75



#### COST : Rapport général d'activités 1989-1990

EUR 13156 FR 360 pp.  
Contact CEC, DG XII/G-1, COST Secretariat, SDME  
03/82, 200 rue de la Loi, B-1049 BRUSSELS, Belgium:  
fax + 322 236 42 89  
French, English, German



#### The European Community of research and technology

CG-47-86-292-EN-C 74pp.  
Contact OOPEC  
Spanish,Danish,German,Greek,English,French,  
Italian,Dutch,Portuguese



#### Innovations from Community research

ISBN 92-826-1964-8 70pp.  
Contact OOPEC  
Spanish-Danish-German-Greek-English-French-Italian-Dutch-Portuguese



#### EC research funding: A guide for applicants

Contact CEC, DG XII, 200 rue de la Loi, B-1049,  
BRUSSELS, Belgium  
English,German

### Other general publications

The quarterly *Eurotec* newsletter reports on the commitments of the CEC in all its research programmes, particularly in areas such as telecommunications, biotechnology, information technology and health. EC research activities, particularly in terms of the first two Framework programmes, are set out in the publication *The European Community of Research and Technology*, published in 1987. In response to concern expressed about the take-up of results from RTD programmes, a report *Innovations from Community research* was published in 1990, citing a number of innovations stemming from EC research programmes which have recently found commercial application. Another useful reference book entitled *EC research funding catalogues* research activities within the Framework programmes and other related RTD programmes of the EC. It explains the system of calls for proposals and contracts whereby research projects are set up and funded, and provides useful lists of addresses of contact points in the member states.



#### EUROTEC

Contact CEC, DG X, Technology in Europe, 200 rue de la Loi, B-1049 BRUSSELS, Belgium: fax + 322 235 81 26  
Spanish,German,English,French FREE

### Community Offices and Institutions

Many EC official documents and publications are published by and available from *The Office for Official Publications of the European Communities* (OOPEC), in Luxembourg. Its national sales agents, through whom publications may be ordered, are listed on the last page of this guide. Publications may also be ordered on-line through CORDIS. OOPEC issues a quarterly catalogue and also a useful brochure, *The European Community as a Publisher*, which in addition to listing individual titles, describes and explains many major series and categories of EC documentation.

Although the primary function of the Commission Library is to assist officials of the Commission, it is also open to members of the public and researchers wishing to use its comprehensive collection of EC documentation and related material. The Central Library is based in Brussels, with a branch in Luxembourg. The library database is available as ECLAS on the Eurobases host. A number of printed bibliographies are available for external users of the library, recording recent additions to the library.

*Euro-Info-Centres* (Euroguichets), based in all the Member states, are able to supply information on all aspects of Community affairs, policies, regulations and projects, but particularly aim to provide commercial information of interest to SMEs. The

addresses of these centres are listed in the guide to research funding mentioned above.

The same book also lists *Commission Press and Information Offices* (now known as European Commission Offices), whose role is to represent the Commission and to explain its policies to the general public as well as to specialised interest groups, and to promote awareness of the European dimension in the lives and activities of EC citizens.



#### **Office for Official Publications of the European Communities (OOPEC)**

Contact OOPEC, L-2985 LUXEMBOURG



#### **Commission Library**

Contact CEC, 200 rue de la Loi, B-1049 BRUSSELS, Belgium : fax + 322 235 01 50 (see also ECLAS database)



#### **Euro-Info-Centres**

See list on pp. 154-174 in EC research funding: a guide to applicants above.

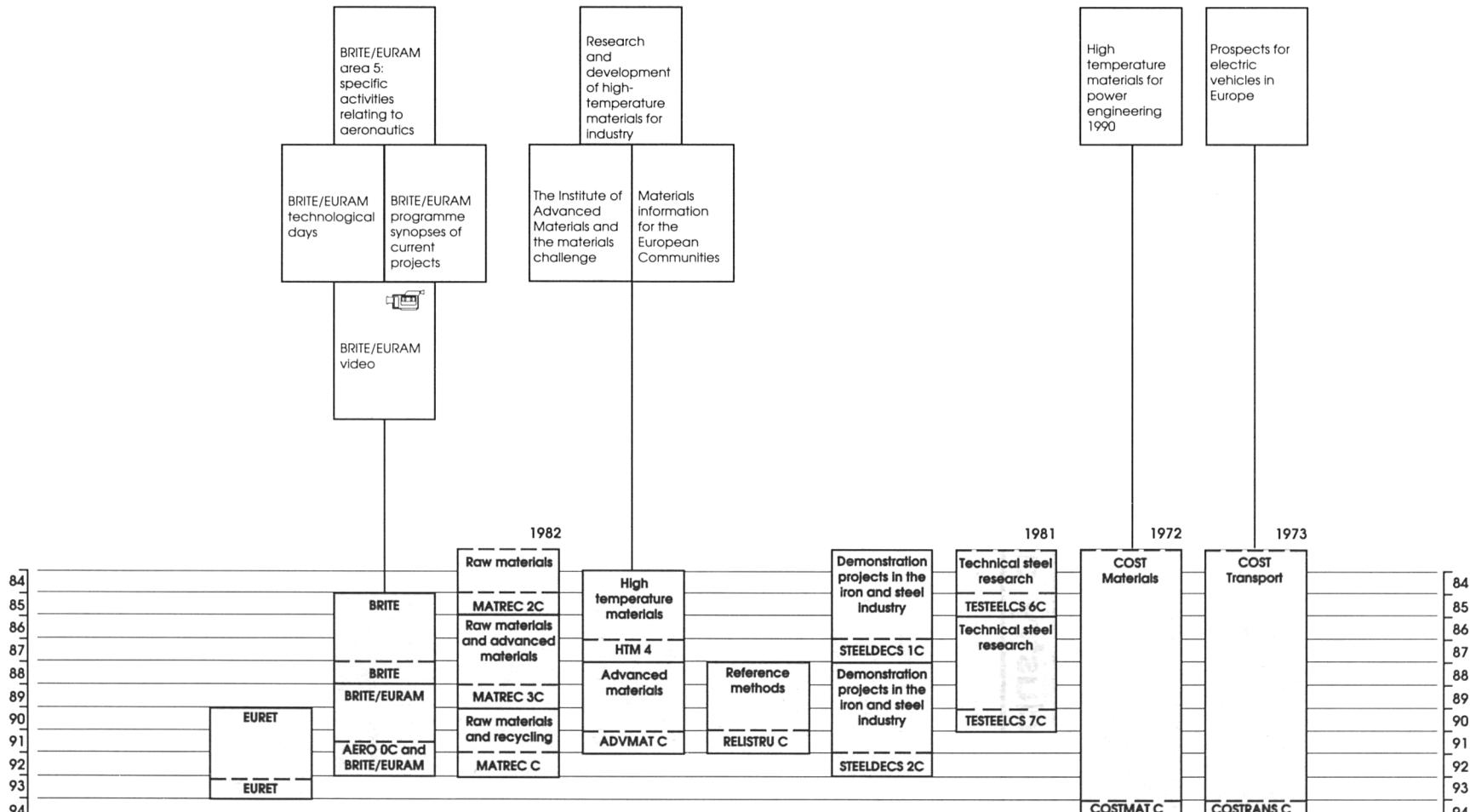


#### **European Commission Offices**

See list on pp. 147-153 in EC research funding: a guide to applicants above.



## **□ 2. Industry and Technology □**



**Industry and  
Technology**

## **□ 2. Industry and Technology □**

The largest of the current programmes in the industrial technologies area is the BRITE/EURAM programme (1989-1992) with a budget of nearly 500 MECU. The earlier BRITE (Basic Research in Industrial Technologies for Europe) programme (1985-1988) dealt with pre-competitive basic and technological research and the application of new technologies. EURAM (European Research on Advanced Materials) concerns studies of advanced materials technologies and their applications. BRITE/EURAM continues this work and has been extended to include the application of manufacturing technologies, manufacturing processes and aeronautics. The aeronautics programme deals specifically with activities relating to aerodynamics, acoustics, airborne systems and equipment, and propulsion systems. The BRITE/EURAM Programme is managed by DG XII.

The Raw Materials and Recycling programme (1990-1992), also from DG XII, deals with the supply and processing of primary raw materials such as minerals, recycling of waste and non-ferrous metals, wood as a renewable raw material, and advanced materials.

The Joint Research Centre (JRC) also runs an Advanced Materials programme (1988-1991). Work started in 1984 on high temperature materials, such as steels, alloys and ceramics. The current programme was set up to investigate the behaviour of structural and functional materials, the properties of material surfaces and coatings and the improvement of existing materials or innovation of new ones. An important part of this programme is consideration of the management of this information.

The JRC is also responsible for a programme on the Reliability of Structures (1988-1991). This covers studies of the components and materials used for construction work or in mechanical systems, with particular emphasis on component life and behaviour under severe loading.

The European Coal and Steel Community (ECSC) is responsible for two programmes in the industrial

technologies area, first a programme concerning technical steel research (1986-1990) into steel production, processing and consumption and secondly a programme of pilot and demonstration projects in the iron and steel industry (1988-1992). Under the COST programme a materials programme has been set up to support the European power engineering industry through work on high temperature materials, on both concrete and non-concrete construction elements, on powder metallurgy and on light alloys.

In the field of transport, sixteen projects have been launched under the COST programme, which mainly concern the application of new technologies, particularly in informatics and telecommunications, to traffic management, road safety and marine navigation systems. The recent (1990-1993) EURET programme addresses the issues of economic efficiency, safety and environmental acceptability of transport, particularly in the areas of track-guided transport, and road, sea and air traffic.

Other current programmes also include activities related to industry and technology, although their main areas of concern are the subject of later chapters of this book. In the area of information and communication technologies, in chapter 3, there are three programmes in particular which are closely related to industry and technology. These are: RACE, which deals with integrated broadband communications, ESPRIT which deals with information technologies, and DRIVE, which deals with the applications of informatics to road transport.

In the area of non-nuclear energies, in chapter 4, the Energy Conservation programme includes work related to the construction industry. Chapter 5 on nuclear energy includes the TELEMAN programme, which deals with remote handling of hazardous materials, particularly in the nuclear industry. The COMETT programme, which provides technological training for university students and new graduates, is described in chapter 12, Social and Economic Concerns.



## **IRDAC NEWS**

The Industrial R&D Advisory Committee (IRDAC) of the CEC publishes a quarterly newsletter, IRDAC NEWS. This covers topics such as the third Framework Programme (1990-1994), the activities of IRDAC Working Parties, a calendar of IRDAC events, IRDAC membership and issues related to IRDAC functions.

Contact IRDAC NEWS Office, 1 rue Defacqz, Box 12, B-1050 BRUSSELS, Belgium : fax + 322 344 12 70



## **DOMIS**

DOMIS (Directory of Materials Data Information Services) is an online directory of materials information sources and services currently available in Europe. DOMIS is intended for users who are involved in industry, research and administration, and provides details of information on materials including metals, alloys, steel, glass, ceramics, composite materials, coatings, joints, plastics, rubber, and leather. It is updated several times a year and is available free of charge through the ECHO Host.

Contact ECHO Customer Services, Airport Centre, 5, rue Höhenhof, LUXEMBOURG-Senningerberg/ECHO Help Desk: tel + 352 34 98 11 : fax + 352 34 98 12 34  
English



## **BRITE/EURAM programme: Synopses of current projects 1989-1990**

The BRITE-EURAM programme publishes synopses of current projects, i.e. those selected for support under the 1989 round of BRITE/EURAM, and updated synopses of projects still running under the two preceding EC programmes. This publication covers the period 1989-1990.

EUR 12600 EN 514pp.  
Contact OOPEC  
English ECU 40



## **BRITE/EURAM**

The BRITE/EURAM video presents eight examples of cooperation between various companies and universities in the sectors of industrial technology (BRITE) and advanced materials (EURAM). It also situates these two programmes in the framework of overall Community RTD.

Video ref. P 426 DE,EN,FR  
Contact Film and Video Library, CEC, DG X, 200 rue de la Loi, B-1049 BRUSSELS, Belgium : fax + 322 235 01 42/+ 322 236 07 52  
German,English,French



## **BRITE/EURAM Area 5: Specific activities relating to aeronautics: Synopses of projects supported under the call for proposals 1989**

BRITE/EURAM projects in the aeronautics area are described in this separate 1990 publication. 28 2-year research projects were selected for support. For each of these is given a summary of the objectives, contact persons and participants.

EUR 13210 EN 40pp.  
Contact OOPEC  
English ECU 6.25



## **BRITE/EURAM Third technological days 1990: Programme and abstracts**

The 3rd BRITE/EURAM Technological Days 1990 were entitled 'Manufacturing Technologies for the 1990s'. This book contains abstracts of the papers and lists of the posters presented.

Contact BRITE/EURAM programme, CEC, DG XII/C-2 and C-3, 75 rue Montoyer, B-1040 BRUSSELS, Belgium : fax + 322 235 8046  
English



## **Evaluation of specific activities relating to aeronautics (BRITE/EURAM area 5 - 1989-1990): interim report**

An interim evaluation report on aeronautics in BRITE/EURAM Area 5 outlines the history of aeronautics activities. The main focus of the report is on the broader issues relating to the rationale and value of European action on aeronautics research and technology validation.

EUR 13000 EN 56pp.  
Contact OOPEC  
English ECU 10



## **The Institute of Advanced Materials and the materials challenge**

This publication evaluates the nature and importance of the European market for advanced materials, those with specific functions or improved structural performance. It describes how the Institute plans to gear its experience and resources in a joint effort with partners in other European centres in response to the challenge of rapid technological advance.

EUR 12275 EN 16pp.  
Contact OOPEC  
English ECU 5



### **Research and development of high-temperature materials for industry**

Work on high temperature materials carried out at the JRC Petten is described in this book, published in 1989. It reviews materials requirements in high-temperature technologies and relates these to industry and operational performance.

*EUR 12374 EN*

Contact Elsevier Science Publishers Ltd, Crown House, Linton Road, BARKING, Essex, England IG11 8JU : fax + 44 81 594 72 72

English



### **Prospects for electric vehicles in Europe**

A key publication in the area of transport RTD is a report of the proceedings of a European seminar held in October 1987 in Brussels.

*EUR 11919 EN,FR,DE*

Contact OOPEC  
English,French,German



### **Review of and prospects for research and technology in the steel sector**

This report discusses the part played by R&D in the development of both processes and products in the European Community's steel industry. It considers the short- and medium-term role of R&D and the long-term prospects for steel research, looking to the year 2000 and beyond.

*EUR 12960 EN* 53pp.  
Contact OOPEC  
English

*ECU 6.25*



### **High temperature materials for power engineering 1990 (2 volumes): Proceedings of a conference held in Liège, Belgium, 24-27 September 1990**

Work on high-temperature materials is reviewed in a two-volume publication, the proceedings of a conference held in 1990. This presents the results of the European Collaborative Programmes and also references to work performed elsewhere. A series of 29 coordinated papers gives an overview of significant achievements.

*EUR 12806 EN*

Contact Kluwer Academic Publishers, PO Box 322, 3300 AH DORDRECHT, The Netherlands : fax + 317 818 32 73

English



### **Materials information for the European Communities: Proceedings of the concluding workshop of the materials database demonstrator programme, 6 to 8 December 1989, Petten, The Netherlands**

The materials database demonstrator programme of the CEC was concluded at a major workshop held at Petten in December 1989. Eleven materials databases were used to explore the practical problems involved in the building, operation and application of such systems. The DOMIS database was one of the direct results of this work.

*EUR 13153 EN* 122pp.  
Contact OOPEC  
English

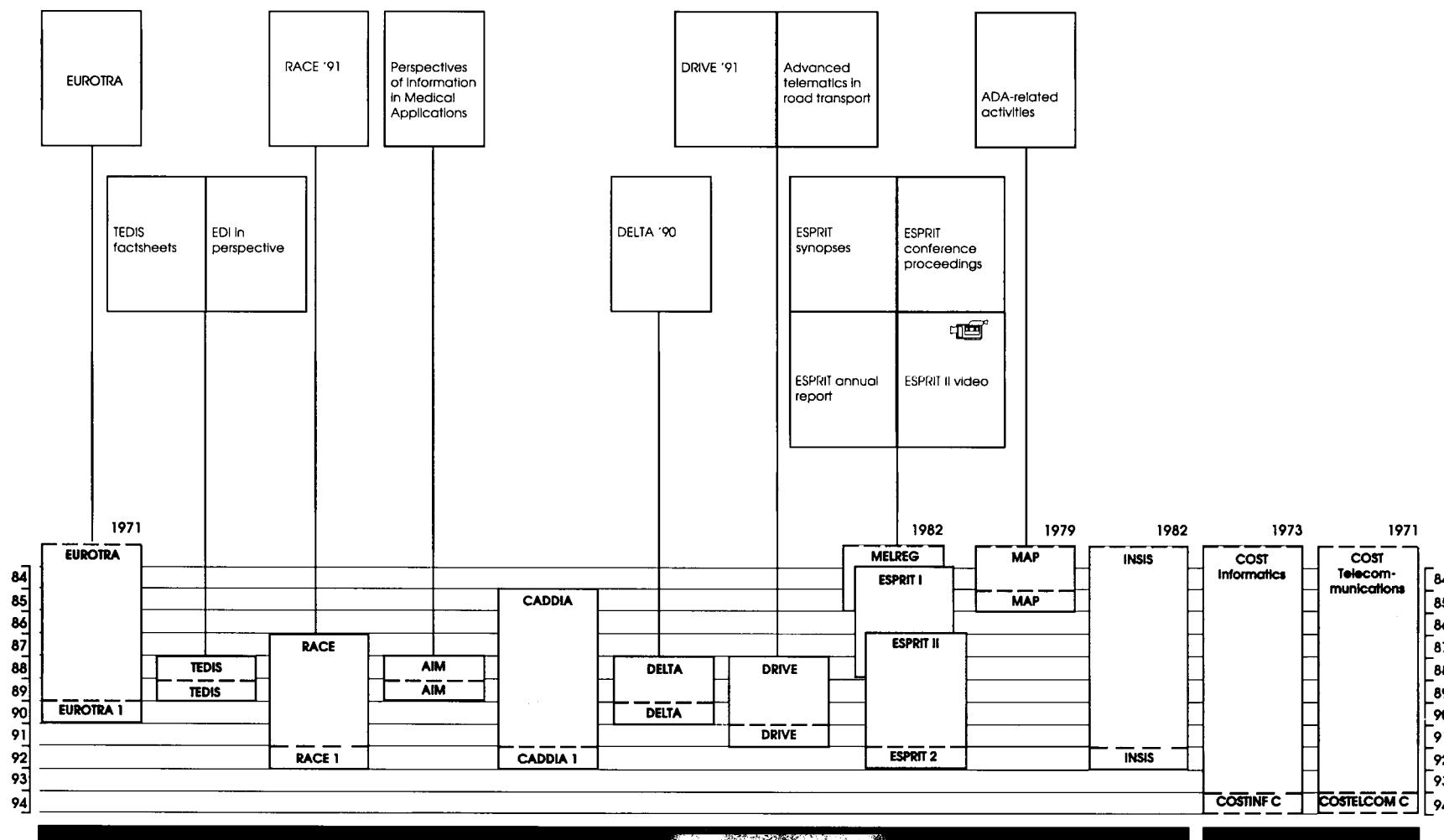
*ECU 11.25*



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**□ 3. Information Technologies  
and Telecommunications □**

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**Information  
Technologies and  
Telecommunications**



### □ 3. Information Technologies and Telecommunications □

Activities in Information Technology are dominated by the ESPRIT Programme (European Strategic Programme for Research and Development in Information Technologies). The technological areas supported in ESPRIT are those with a long term strategic impact: microelectronics and peripherals technologies, information processing systems, office and business systems and computer integrated manufacturing together with the information exchange system and basic research actions. The current programme, ESPRIT II, runs from 1987 - 1992 and has a budget of 1,600 MECU. The projects of the earlier Microelectronics Programme (1982-1985), particularly in the areas of CAD and VLSI, provided important input into the ESPRIT programme. In addition, there are currently many smaller programmes within the Information Technologies area, concerning the application of telecommunications or informatics to specific sectors.

The principal telecommunications programme is RACE (1987-1992), which is particularly concerned with IBC (Integrated Broadband Communications). Six other programmes are particularly concerned with the development of information systems in specific areas. These are AIM (1988-1989), CADDIA (1985-1992), DRIVE (1988-1991), INESIS (1982-1992), DELTA (1988-1990) and TEDIS (1988-1989), which relate to the areas of medicine, import/exports and the agricultural market, road systems, Community institutions, education and commerce re-

spectively. The EUROTRA Programme (1971-1990) aims to develop a machine translation system for Community languages. It is therefore concerned with both linguistic research and the creation of an operational prototype software system. Finally, MAP (1979-1985) was an early programme in the field of data processing, concerned with issues such as standardisation, confidentiality and security of data, legal protection for programs and promotional activities. Information on all these programmes is available from DG XIII in Brussels.

Other current programmes also include activities related to information technologies and telecommunications although their main areas of concern are the subject of other chapters of this book. In chapter 9 on measurements and standards is described a particularly closely related programme on standardisation in the field of information technology and telecommunications. Chapter 6 on physical and exact sciences includes the DOSES programme, which relates to statistical expert systems, and also the Remote Sensing programme, which applies satellite remote sensing and telecommunications techniques to the monitoring of land and sea surfaces. In chapter 12 on social and economic concerns, there are described two programmes concerned with the European information market, and also MEDIA92, which deals with the audiovisual industry, including television.

#### XIII magazine

XIII magazine and its supplement, XIII news review, provide a general overview of EC activities in the field of Information Technologies and Telecommunications. They integrate *iesnews* and *I'Mnews*, previously published by DG XIII. The first issue was published in January 1991 and will be issued quarterly in the first year and bimonthly thereafter. The aim of XIII magazine is to provide information covering the activities and programmes supported by DG XIII, while the XIII news review supplement will provide information on current events, key decisions, new services, conferences etc.

Contact M. Siotis, CEC, DG XIII/E-5, 200 rue de la Loi, B-1049 BRUSSELS, Belgium : fax + 322 235 38 21  
23

English, French, Spanish, Italian, German

#### ESPRIT information desk

The ESPRIT Programme maintains an Information Desk which provides institutions, potential participants, the specialist and general media with information and publications concerning the ESPRIT Programme.

Contact ESPRIT Information Desk, CEC, BREY 10/198, 200 rue de la Loi, B-1049 BRUSSELS, Belgium : fax + 322 235 38 21

English

FREE



## ESPRIT II

The ESPRIT Programme has produced two videos. The first of these demonstrates how ESPRIT acts to bring academic and industrial researchers together. It shows one of the participants at work, and outlines the broader purposes of the ESPRIT Programme.

Video ref. P 381 ES,DE,EN,FR

Contact Film and Video Library, CEC, DG X, 200 rue de la Loi, B-1049 BRUSSELS, Belgium : fax + 322 235 01 42/+ 322 236 07 52  
Spanish,German,English,French



## ESPRIT Project 73

The second video is based on an ESPRIT project to develop a local area network.

Contact M. Siotis, CEC, DG XIII, 200 rue de la Loi, B-1049 BRUSSELS, Belgium : fax + 322 236 27 23  
Spanish,English,French



## ESPRIT 1989 annual report

An overview of ESPRIT activities is provided by the Annual Report. This describes work on information technology and communications including microelectronics, information processing systems, office and business systems, computer integrated manufacturing (CIM), basic research and the information exchange system. It also gives listings of ESPRIT projects, partners and participants.

EUR 12626 DE,EN,FR,IT

106pp.

Contact OOPEC

German,English,French,Italian



## ESPRIT synopses

Factual details of ESPRIT projects are published in synopses in 8 small volumes (one or two per subject area) annually. These cover all completed and continuing projects, exploratory actions, actions and working groups, giving descriptions of the objectives, results, commercial prospects, details of participating organisations, contact points, start date and duration.

Contact ESPRIT Information Desk, CEC, BREY 10/198, 200 rue de la Loi, B-1049 BRUSSELS, Belgium : fax + 322 235 38 21

English



## ESPRIT 1991 conference proceedings

The result of ESPRIT projects and basic research activities are described in the publication of the 1991 conference proceedings.

EUR 13853 EN

Contact OOPEC

English

900 pp.

ECU 65



## Computational logic:symposium proceedings, Brussels, November 1990

ESPRIT publishes a series of 'Basic research' reports. The first of these contains papers presented at the Symposium on Computational Logic held during the ESPRIT Week in November 1990.

EUR 13147 EN

Contact Springer-Verlag GmbH & Co. KG, Postfach 10 52 80, Tiergartenstrasse 17, D-6900 HEIDELBERG

1, Germany

English

211pp.



## Computer Integrated Manufacturing: proceedings of the sixth CIM-Europe annual conference

Activities in Computer Integrated Manufacturing are reviewed in the papers given at the 6th CIM Europe conference, held under the auspices of ESPRIT in Lisbon in May 1990.

EUR 12785 EN

Contact Springer-Verlag GmbH & Co. KG, Postfach 10 52 80, Tiergartenstrasse 17, D-6900 HEIDELBERG

1, Germany

English



## Research and development in advanced communications technologies in Europe: RACE '91

The objectives, development, activities and results of the RACE programme in its fourth year are described.

Contact CEC, DG XIII/F, RACE Central Office, 200 rue de la Loi, B-1049 BRUSSELS, Belgium : fax + 322 235 06 54

English

FREE



### RACE : Common functional specifications

The Common Functional Specifications contain the framework of the results of Part 1 of RACE, on the IBC development and implementation strategies.

EUR 13846 EN, Vols. 1-8

1229 pp.

Contact OOPEC

English

ECU 100



### Perspectives of information in medical applications: Strategic issues, requirements and options for the European Community

The AIM Programme deals with applications of informatics in medicine. The medical informatics review MIR 89 report forms part of the process of evaluation of the objectives and achievements of AIM. Volume 1 of this report takes the form of an executive summary of the significant issues seen as governing the evolution of advanced information systems for health care and medicine in Europe.

EUR 13328 EN

Contact Springer-Verlag GmbH & Co. KG, Postfach 10 52 80, Tiergartenstrasse 17, D-6900 HEIDELBERG 1, Germany

English



### Data protection and confidentiality in health informatics

The report describes the papers and working conclusions of an AIM conference held in March 1990, to investigate issues in the development of telematics tools for the health care sector, from medical, legal, technical and organisational standpoints.

Contact IOS Press, Van Diemenstraat 94, 1013 CN, Amsterdam, NETHERLANDS.

English



### R+D in advanced road transport telematics in Europe: DRIVE '91

The report describes the status of the DRIVE Programme in early 1991. A large part of the book is taken up with fact sheets on the DRIVE projects, listing the main objectives, technical approach, key issues, expected impact and participants.

Contact CEC, DG XIII/F-5, DRIVE programme, 200 rue de la Loi, B-1049 BRUSSELS, Belgium : fax + 322 236 23 91

English

FREE



### Advanced telematics in road transport

The proceedings of the DRIVE conference, held in Brussels in February 1991, have been published in two volumes. Volume 1 covers RTI infrastructure, systems architecture, route guidance, short range communications, variable message signs, driver support, urban traffic management and control. Volume 2 covers transport modelling, traffic simulation, freight, weather, road performance, tunnel management, processor and terminal development and road user behaviour.

EUR 13283 EN

1542 pp.(2 vols.)

Contact Elsevier Science Publishers Ltd, Crown House, Linton Road, BARKING, Essex, England IG11 8JU

: fax + 44 81 594 72 72

English



### R + D in information and communication based learning technology: DELTA '90

The report outlines the background, objectives and current status, programme structure and action lines of the DELTA programme. It provides an overview of current standards in the domain of advanced learning technologies. The appendices include project summaries and lists of contractors.

Contact DELTA Programme Office, CEC, DG XIII, 200 rue de la Loi, B-1049 BRUSSELS, Belgium:

fax + 322 236 23 92

English



### R+D on telematic systems in flexible and distance learning: workplan

This DELTA workplan, published in 1991, identifies the strategies and the future research tasks to be addressed in the application of telematics in distance learning. This publication consists of two main portions, the first of which explains the rationale, scope and overall structure of the workplan; the second details Series 100 implementation strategies and scenarios, Series 200 technology and systems development and Series 300 pilot testing and validation.

Contact DELTA Programme Office, CEC, DG XIII, 200 rue de la Loi, B-1049 BRUSSELS, Belgium:

fax + 322 236 23 92

English



### **Final report on the DELTA exploratory action**

This final technical report identifies and synthesises the most promising findings of the 30 projects involved in the DELTA exploratory action. It also provides lists of DELTA projects, contact points and documents, and pointers to RACE and ESPRIT.

Contact DELTA Programme Office, CEC, DG XIII,  
200 rue de la Loi, B-1049 BRUSSELS, Belgium:  
fax + 322 236 23 92  
English



### **TEDIS factsheets**

Five fact sheets on the TEDIS (Trade Electronic Data Interchange Systems) have been published in one information pack. These describe the programme, TEDIS telecommunications, legal aspects, EDI security and EDIFACT.

EUR 12293 DA,DE,EN,ES,FR,GR,IT,NL,PT 10pp.  
Contact CEC, DG XIII, 200 rue de la Loi, B-1049  
BRUSSELS, Belgium : fax + 322 235 02 99  
Spanish,Danish,German,Greek,English,French,  
Italian,Dutch,Portuguese FREE



### **EDI in perspective**

This document is aimed at organisations which have not yet been involved in EDI, particularly small and medium sized enterprises otherwise unable to follow EDI developments. It emphasises the development of EDI standards, the need for participation of all industry sectors and the commitment of the European Commission to the coordinated development and implementation of EDI in the member states.

EUR 11883 ES,DA,DE,GR,EN,FR,IT,NL,PT 54pp.  
Contact OOPEC  
Spanish,Danish,German,Greek,English,French,  
Italian,Dutch,Portuguese



### **EUROTRA**

A general introduction to the EUROTRA Machine Translation (MT) System is provided. The technical objective of the system is the creation of a prototype system capable of dealing with all Community languages. It will create a European base of expertise on MT and computational linguistics in general.

EUR 12853 ES,DA,DE,GR,EN,FR,IT,NL,PT 10pp.  
Contact OOPEC  
Spanish,Danish,German,Greek,English,French,  
Italian,Dutch,Portuguese



### **ADA-related activities under the multiannual programme in the field of data processing**

This volume contains two documents related to the MAP/ADA data processing programme. The first is a report on the ADA-related facilities and the second is the final report of a study on the European ADA market.

EUR 12873 EN  
Contact OOPEC  
English



### **Information technology atlas - Europe**

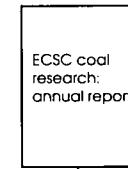
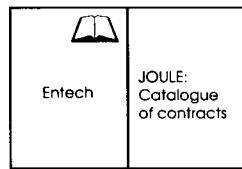
This directory lists and briefly describes organisations that are active in IT research, standardisation and the telecommunications infrastructure in Europe and in the EC in particular. It also provides a review of research policies and programmes of the EC and throughout Europe.

ISBN 90 51 99 03 16 EN 452pp.  
Contact IOS B.V., Amsterdam and C.G.Wedgwood & Co. Ltd., London  
English

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**□ 4. Non-nuclear Energy □**

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of energy in  
buildings

ENDWEL C

Techniques for  
solar energy  
tests

SOLARTEST 4C

Liquefaction and  
gasification of  
solid fuels

LIGASF

Alternative  
energy

ENALT 2C

Energy  
demonstration  
projects

ENDEMO C

Hydrocarbon  
technologies

HYDROCARB 1C

Hydrocarbon  
technologies

HYDROCARB 2C

Technical coal  
research

TECOALS 4C

Technical coal  
research

TECOALS 5C

Technical coal  
research

TECOALS 6C

THERMIE

THERMIE

ECSC



## **□ 4. Non-nuclear Energy □**

European Community research and development in the field of non-nuclear energy relates to the rational use of energy, the exploitation of new and renewable sources of energy such as biomass, solar energy, geothermal energy and wind energy, the improved or innovative use of traditional fuels such as coal, oil and gas, and the prevention of damage to the environment by such activities.

The aim of the JOULE programme (1989-1992) of DG XII, with funding of 122MECU, is to develop novel energy technologies based on renewable energies or on fossil fuels, to develop models for energy and environment and to develop technologies for the rational use of energy. The emphasis of the THERMIE programme (1990-1991) in DG XVII is on providing support for high-risk projects concerned with the application of these same new technologies.

JOULE was preceded by several earlier programmes on non-nuclear energies and the rational use of energy, covering topics such as the liquefaction and gasification of solid fuels, geothermal energy, hydrogen as an energy vector, energy conservation, energy systems analysis and strategy studies. THERMIE develops the work of earlier energy demonstration programmes (demonstration projects and industrial pilot projects in all areas of the energy field) and the hydrocar-

bon technologies programmes (technological development in the hydrocarbons sector).

The European Coal and Steel Community also supports technical coal research, particularly in respect of mining technology and product upgrading, the current programme running from 1990-1994.

Two earlier programmes in specific energy areas both ended in 1988. The Energy in Dwellings programme was concerned with energy audits, passive technologies and the evaluation of hybrid systems for energy management. The Solar Tests programme included work on both photovoltaic and thermal systems for the conversion of solar power.

Work on reference methods for non-nuclear energies is carried out by the Joint Research Centre (JRC); further details are given in chapter 9 on measurements and standards.

The first six entries below give a broad view of research activities in the non-nuclear energies sector and the JOULE programme in particular. The remainder are each specific to a single type of energy source such as biomass, hydrocarbon, geothermal, photovoltaic and wind energy, and are grouped accordingly.



### **Energy in Europe**

This newsletter is issued three times a year. It follows energy policies and trends in the European Community, contains news of Community activities, articles and lists of main Commission energy documents, proposals and directives. Under the same title the Commission publishes special issues, under titles such as *Major themes in energy*.

Contact CEC, DG XVII, The Editor, *Energy in Europe*, 200 rue de la Loi, B-1049 BRUSSELS, Belgium : fax + 322 235 01 50

English

ECU 12.70 per copy/  
ECU 35 subscription



### **SESAME**

SESAME covers the results of projects on the recycling of urban and industrial waste, raw materials, textiles, environment, energy management, energy savings, renewable energies, liquefaction, gasification, hydrocarbon substitutes (demonstration projects) and hydrocarbons technology.

Contact CEC, Eurobases, 200 rue de la Loi, B-1049 BRUSSELS, Belgium : fax + 322 236 06 24  
English



The Entech newsletter, issued by JOULE, features book reviews, conference details and articles. It is issued once or twice each year.

Contact CEC, DG XII/E, Entech Editor, rue de la Loi 200, B-1049 BRUSSELS, Belgium

English



#### Euroforum new energies: proceedings of an international congress held at Saarbrücken, FR Germany, 24-28 October 1988

Papers presented at this conference addressed the following topics:- development of new and renewable energies, the potential of each energy source for commercial development, and the achievements of the Commission's renewable energies R&D programme.

EUR 11884 EN-DE 3 vols.

Contact H S Stephens & Associates, Agriculture House, 55 Goldington Road, BEDFORD, United Kingdom MK40 3LS

English-German



#### JOULE programme 1989-1992 : Catalogue of contracts

The catalogue provides for each contract concluded so far information on the objective of the project, a brief description of the research to be carried out, the names and addresses of the scientific coordinators and a list of the other major participants.

EUR 13685 EN

Contact OOPEC

English



#### Non-nuclear energy R&D programme: energy conservation series

This is a series of reports deriving from the first, second and third non-nuclear energy R&D programmes (1975-1989) and from JOULE (1989-1992). All these reports are concerned with the sub-programme Energy Conservation, and the following titles are included: Heat Exchangers for Industry; Heat Pumps; Rankine Cycle Engines; Combustion; Energy in Industry-Technologies and Applications.

Contact CEC, DG XII/E-5, 200 rue de la Loi, B-1049 BRUSSELS, Belgium

English



#### Energy from biomass

This series, of books deriving from the third non-nuclear energy programme, appears under the Elsevier Applied Science label. It includes the following titles: Proceedings of the Third Contractors' Meeting, Paestum, 25-27 May 1988 (published 1989 as EUR 11813 EN); Photoconversion processes for energy and chemicals (published 1989 as EUR 12529 EN).

Contact Elsevier Science Publishers Ltd, Crown House, Linton Road, BARKING, Essex, England IG11 8JU : fax + 44 81 594 72 72

English



#### LEBENews

These newsletters aim to increase public awareness of Large European Biomass ENergy (LEBEN) projects. Many of the technologies now being applied in the participating regions had their origins in activities of the research programmes on Non-Nuclear Energy and Renewable Resources.

Contact The Biomass Unit, CEC, DG XII/F-4, 200 rue de la Loi, B-1049 BRUSSELS, Belgium

English



#### Progress in synthetic fuels

This volume derives from the first seminar on the programme 'Progress in Synthetic Fuels'. It surveys the status of the technologies involved in the use of synthetic fuels as an energy vector and the advances that have been achieved through the third non-nuclear energy R&D programme.

EUR 11843 EN

Contact Kluwer Academic Publishers, PO Box 322, 3300 AH DORDRECHT, The Netherlands :

fax + 317 818 32 73

English



#### Hydrocarbons as an energy source

This book documents the proceedings of the first seminar of the sub-programme 'Optimization of the Production and Utilization of Hydrocarbons' held in September, 1988.

EUR 12212 EN

Contact Graham & Trotman Ltd, Kluwer Academic Publishers, PO Box 322, 3300 AH DORDRECHT, The Netherlands : fax + 317 818 32 73

English



### **Hydrocarbons R&D in the European Community**

This catalogue of contractors gives the value, contact person, objective and a brief description for each project in the hydrocarbons area (oil and natural gas) in the subprogramme 'Energy from fossil sources' of the JOULE programme. The previous version of this catalogue pertained to the third non-nuclear energy R&D programme and was published under the title *Production and Utilization of Hydrocarbons* as EUR 11602 EN (1988).

Contact CEC, DG XII/E-6, 200 rue de la Loi, B-1049 BRUSSELS, Belgium : fax + 322 236 30 24

English



### **New technologies for the exploration and exploitation of oil and gas resources**

This major reference work was published in 1988 in two volumes and addresses the latest advances and developments in European hydrocarbon technology.

EUR 11704 EN

Contact Graham & Trotman Ltd, Kluwer Academic Publishers, PO Box 322, 3300 AH DORDRECHT, The Netherlands : fax + 317 818 32 73

English



### **The utilization of solid fuels: Catalogue of R&D contracts 1988**

This catalogue summarises the main data of each contract and gives a short description of the content of each of 66 projects. The subprogramme includes the following topics: fluidized bed combustor design, construction and operation; coal-water mixtures; combustion of lignite, peat and pulverized coal; flue gas treatment; fly ash properties, re-use and disposal; preparation and purification of solid fuels; coal properties; coal gasification.

EUR 11847 EN  
Contact OOPEC  
English

83pp.

ECU 7.50



### **ECSC coal research: Annual report 1988**

This report outlines ECSC research activities in coal during 1988 under two headings: mining techniques and coal upgrading.

EUR 12292 EN  
Contact OOPEC  
English

152pp.

ECU 12.50



### **European geothermal update**

This volume documents the proceedings of the Fourth International Seminar on the Results of EC Geothermal Energy Research and Demonstration Projects held in July 1989.

EUR 12038 EN

Contact Kluwer Academic Publishers, PO Box 322, 3300 AH DORDRECHT, The Netherlands : fax + 317 818 32 73

English



### **Wind-diesel and wind-autonomous energy systems**

This book gives an overview of Community demonstration projects on autonomous and wind-diesel energy systems, as reported in papers presented during a contractors' meeting in April 1988.

EUR 11931 EN

Contact Elsevier Science Publishers Ltd, Crown House, Linton Road, BARKING, Essex, England IG11 8JU : fax + 44 81 594 72 72

English

£25



### **Proceedings of the European Community wind energy conference**

The most recent European Community Wind Energy Conference was held in Madrid in September 1990. The main thrust of the conference was to report on and discuss the results of the many projects supported by the CEC in the area of wind energy technology and system utilisation.

EUR 13251 EN

Contact H S Stephens & Associates, Agriculture House, 55 Goldington Road, BEDFORD, United Kingdom MK40 3LS

English

772pp.

Contact OOPEC

English



### **Photovoltaic demonstration projects**

The proceedings of the annual photovoltaic contractors' meetings provide an overview of the progress of photovoltaic demonstration projects which have been running under the energy demonstration programme from 1983 onwards. The latest volume reports on the 4th meeting, held in 1989.

EUR 13105 EN

Contact OOPEC  
English

370pp.

ECU 32.50



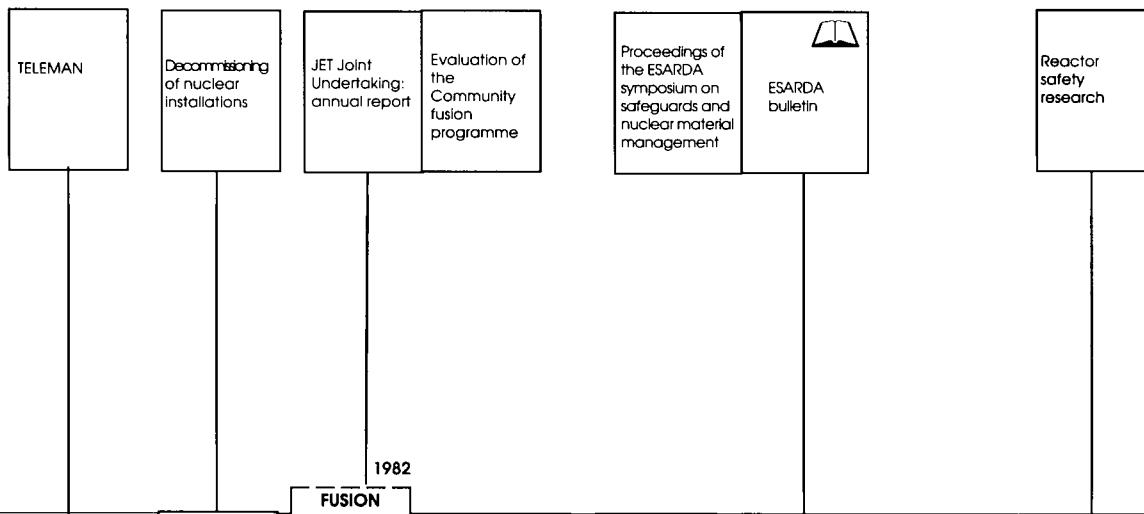
#### **Tenth E.C. photovoltaic solar energy conference**

Around 350 papers were presented at a conference in Lisbon in April 1991. This book of the proceedings reflects the stronger commitment of big European corporations to photovoltaics and to the industrialisation of academically developed concepts, as well as the importance of photovoltaics in developing countries.

*EUR 13807 EN 1437pp.  
Contact Kluwer Academic Publishers, PO Box 322,  
3300 AH DORDRECHT, The Netherlands :  
fax + 317 818 32 73  
English*

## **□ 5. Nuclear Energy □**

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## **□ 5. Nuclear Energy □**

Nuclear reactors, based on fission energy, are an established part of the European power industry. While there is still some basic research into new fuels and reactor designs, the major part of research work in the area of nuclear fission concerns the safe operation of nuclear installations and the safe decommissioning of plants at the end of their useful life. Nuclear fusion, however, is still in the exploratory phase and research work there concerns fundamentals of design, components and materials. Research in this area is carried out only through association contracts between the CEC and national research institutes having the appropriate facilities.

The Joint Research Centre (JRC) is responsible for much of the work on nuclear power, particularly in the area of nuclear fission. The three programmes involved are:-

- Nuclear Fuels and Actinide Research,
- Safeguards and Fissile Material Management, and
- Reactor Safety.

The JRC also runs a programme on safety considerations in fusion technology and is responsible for the operation of the High Flux Reactor at Petten. Current programmes in all these areas run from 1988-1991.

The Decommissioning programme (1989-1993) of DG XII deals with the management of decommissioned nuclear plant, their dismantling and the treatment of their component parts, in order to protect both human beings and the environment from the harmful effects of radiation. The TELEMAN programme (1989-1993) is concerned with one of the technical aspects of decommissioning, which is the remote handling of operations such as the

cutting and removal of materials in hazardous areas of nuclear installations.

In the area of nuclear safeguards, DG XVII is responsible for work in fulfilment of obligations under the Euratom treaty, the Non-Proliferation Treaty, and nuclear material supply agreements with third countries.

The Fusion programme (current programme 1988-1992) is also managed by DG XII. This concerns all aspects of controlled thermo-nuclear fusion research. As well as experiments at the Joint European Torus (JET), preparatory studies are in hand for the Next European Torus (NET), focusing not only on the magnetic confinement of plasma and the technology required to reach ignition, but also on the environmental impact, safety and economic considerations.

Other current programmes also include activities related to nuclear energy although their main areas of concern are the subject of other chapters of this book. The Nuclear Measurements programme of the JRC, described in chapter 9, 'Measurements and Standards', provides support in the fields of nuclear measurements and reference materials. The Radiation Protection programme in chapter 10 on 'Protecting man' includes work on the effects of exposure to ionising radiation and the radiological aspects of nuclear accident scenarios. Finally, several programmes discussed in chapter 11 on 'Protecting the environment' deal with the treatment, characterisation and safe disposal of radioactive waste, including the construction and evaluation of underground repositories for the long term storage of highly active waste.



### **Reactor safety research**

The proceedings of a conference held by the Commission at the end of its 1984-88 reactor safety research programme give a comprehensive view of the recent activities and main results achieved in the JRC and national laboratories throughout Europe.

*EUR 12343 EN*

Contact Elsevier Science Publishers Ltd, Crown House, Linton Road, BARKING, Essex, England IG11 8JU : fax + 44 81 594 72 72  
English



### **Decommissioning of nuclear installations**

The proceedings of this conference includes the results of Community programmes on decommissioning and the performance of selected important projects outside the EC.

*EUR 12690 EN*

Contact Elsevier Science Publishers Ltd, Crown House, Linton Road, BARKING, Essex, England IG11 8JU : fax + 44 81 594 72 72  
English



### **TELEMAN: robotics and remote systems in hazardous or disordered nuclear environments**

A key brochure from the TELEMAN programme contains illustrated descriptions of the 16 contracts resulting from the first call for proposals, details of the contractors and coordinators, the TELEMAN programme schedule and an overview of the technical coverage. This includes manipulation, locomotion, observation, the man-machine interface, mapping, mission planning, communications and fault tolerance in the nuclear environment.

Contact CEC, DG XII/D-1, TELEMAN programme, 200 rue de la Loi, B-1049 BRUSSELS, Belgium : fax + 322 236 20 06

English



### **ESARDA bulletin**

The bulletin aims to provide a forum for the exchange of information and ideas between nuclear facility operators and safeguarding authorities. It is published jointly by ESARDA and the JRC Ispra.

Contact The ESARDA Editor, Joint Research Centre, 21020 ISPRA, Italy : fax + 39 332 78 51 45  
English



### **Proceedings of the 13th ESARDA annual symposium on safeguards and nuclear material management**

The proceedings of the 13th ESARDA symposium include papers on the following topics: safeguards systems and implementation; measurement techniques (both destructive analysis and non-destructive assay); containment and surveillance; spent fuel strategies; material accounting and data evaluation.

*EUR 13686 EN-FR*

Contact OOPEC  
English-French

742pp.



### **JET Joint Undertaking: annual report 1989**

The 1989 annual report of the JET Joint Undertaking (published 1990 as EUR-JET-AR-12) includes details of Euratom and other fusion programmes. The main part of the report deals with the technical status of JET, the results of JET operations in 1989, the members, organisation, administration and the future programme.

*EUR 12807 EN*

Contact The Publications Officer, JET Joint Undertaking, ABINGDON, England OX14 3EA  
English



### **JET Joint Undertaking: progress report 1989**

This JET progress report was published in two volumes in March 1990. Volume I summarises technical and scientific achievements during 1989, developments and future plans. Volume II comprises reprints of major JET papers.

*EUR 12808 EN*

Contact The Publications Officer, JET Joint Undertaking, ABINGDON, England OX14 3EA  
English



### **Evaluation of the Community fusion programme (1984-1990)**

A report by a panel of nine independent experts evaluates the Community's fusion programme; and appraises the environmental, safety-related and economic potential of fusion as an energy source, in particular for the Community. It analyses strategic options for the Community fusion programme and formulates recommendations on strategy and the means of implementation.

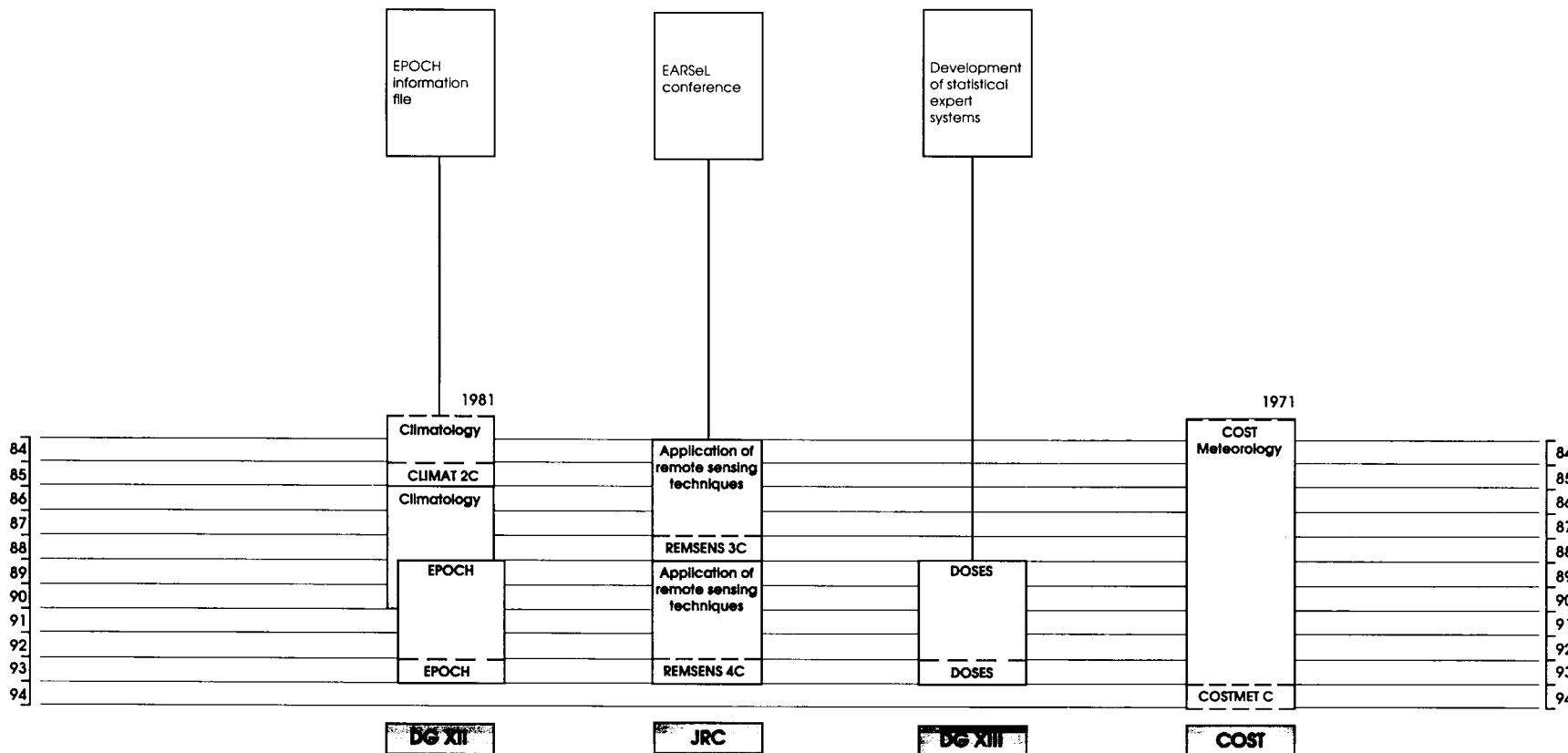
*EUR 13104 EN*

Contact OOPEC  
English

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**□ 6. Physical and Exact Sciences □**

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## **□ 6. Physical and Exact Sciences □**

RTD in the area of the physical and exact sciences is concerned with Statistics rather than Pure Mathematics, and various aspects of Earth Sciences rather than Physics or Chemistry as such.

In the area of mathematics and statistics, the programme DOSES supports work on the development of statistical expert systems. Work is divided into two areas, the first being coordination of existing work on statistical activities in Europe and the second cost sharing actions such as a vertical study, documentation of data, access to statistical information and forecasting.

Several Community programmes aim to monitor and to forecast natural events as they occur on the surface of the Earth. The Climatology programmes which ran from 1981 to 1990 dealt with the physical basis of climate, modelling and forecasting of European climates, climate sensitivity to atmospheric composition and the global carbon cycle, and the impact of climatic change on land and water resources. The two earliest climatology programmes were in fact sub-programmes of two more broadly based programmes, the first of which was known as Environmental Protection and Climatology and the second simply Environment.

The EPOCH programme (1989-1992), which partially overlaps with the Climatology programme and which forms part of the STEP/EPOCH programme, continues the work on climatology and also includes the study of natural hazards due to seismic risk. In addition to these programmes, there are shared action projects under the COST

programme in meteorology dealing with similar topics.

The other major area of research in Earth Sciences is in the Remote Sensing programme (currently 1988-1991). This applies remote sensing techniques and analysis of satellite data to activities such as land use planning, the monitoring of vegetation and the surveillance of pollution at sea. It is also used to examine physical and biological processes related to pollutants in coastal areas or connected with coastal upwelling and marine productivity. It includes advanced techniques such as laser fluorescence remote sensing and microwave remote sensing. The Institute of Remote Sensing, which is part of the JRC, is responsible for this programme.

Other current programmes also include activities related to the physical and exact sciences although their main areas of concern are the subject of other chapters of this book. Much fundamental research in Physics and Chemistry is carried out in the fusion programme, in the areas of plasma physics and optics in particular, as described in chapter 5, 'Nuclear Energy'. Work on the development of techniques for physical and chemical analysis and metrology is carried out under the BCR (Community Bureau of Reference) programmes, described in chapter 9, 'Measurements and Standards'. Mathematical modelling activities also form a part of many EC programmes, particularly those involving the ECSC technical research programmes, nuclear energy, and the environment, in chapters 4, 5 and 11 respectively.



### **Proceedings of the seminar 'Development of statistical expert systems', Luxembourg, December 1987**

At the opening seminar of the DOSES programme, papers presented were concerned with the planning of surveys and data collection, data checking and processing, data analysis, statistics and fields for action by national statistical institutes.

Contact Eurostat, Statistical Office of the European Communities, L-2920 Luxembourg: fax + 235 43 01 47 71  
English



### **EPOCH European programme on climatology and natural hazards (1989-1992): information file**

The EPOCH information file describes the aims and proposed activities of the programme. These include studies of climatic changes and their effect on the environment, the modelling of climate processes and also work on seismic hazards.

Contact STEP/EPOCH programme office, CEC, DG XII, 200 rue de la Loi, B-1049 BRUSSELS, Belgium: fax + 322 236 30 24  
English



### **Proceedings of the 9th EARSeL conference**

A major topic at the 9th EARSeL symposium was the European satellite remote sensing programme and in particular the launch of the ESA satellite ERS-1 in 1990. This satellite was primarily designed to monitor oceans and coastal areas, though its scope was later widened to include land and environmental monitoring.

*EUR 12827 EN*                           *546 pp.*  
*Contact OOPEC*  
*English*                                   *Micro-fiche ECU 24 /*  
   *Blow-up copy ECU 68.50*



### **The Institute for Remote Sensing Applications' contribution to the global change research programme**

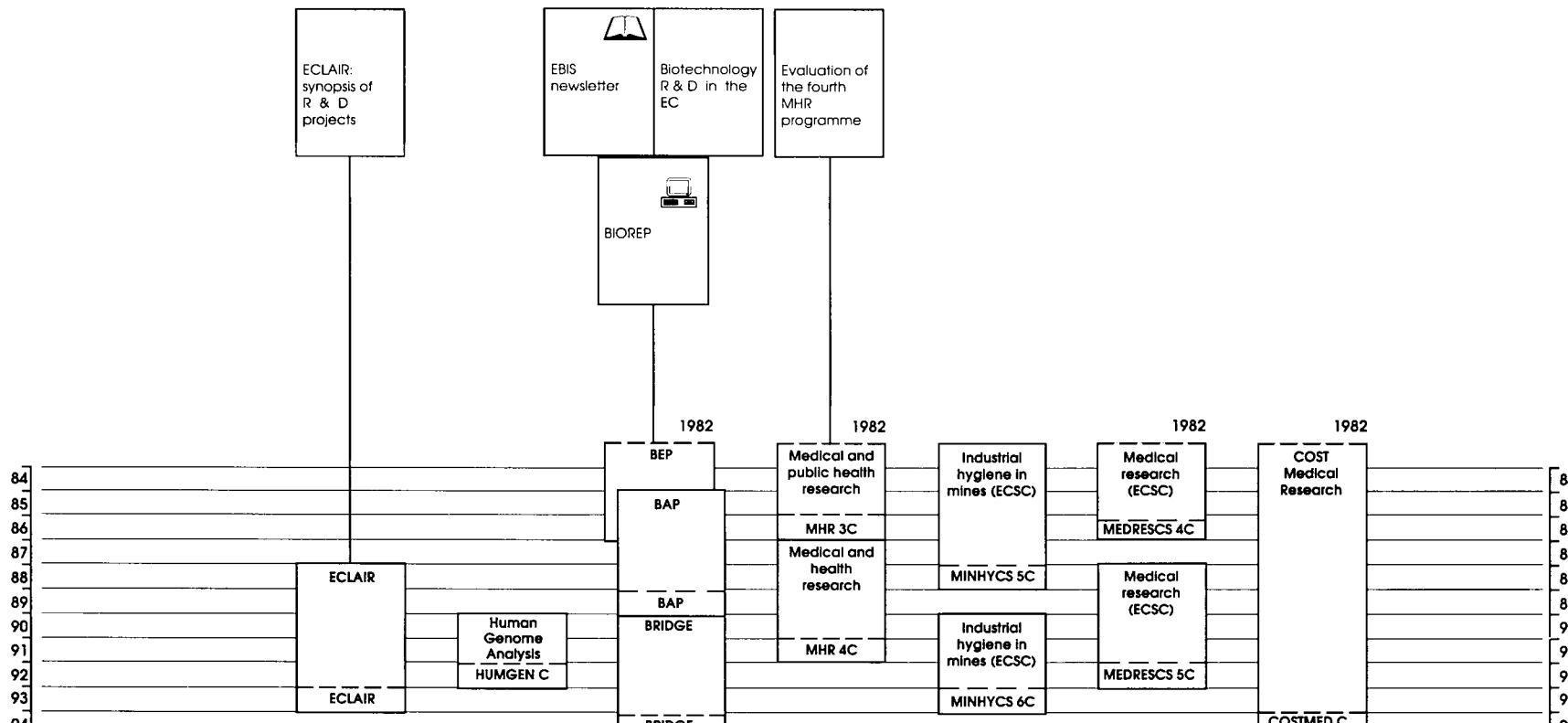
A paper presented at the 16th Annual Conference of the Remote Sensing Society in 1990 discusses the major scientific issues associated with the global change concept. The role of remote sensing as a source of information to address these issues is outlined. An appendix summarizes the main elements of the International Geosphere-Biosphere research programme.

*Contact Remote Sensing Society, Department of Geography, University of Nottingham, NOTTINGHAM, England NG7 2RD*  
*English*

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**□ 7. Biological Sciences □**

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## **□ 7. Biological Sciences □**

One of the larger current programmes, with a budget of 100MECU, is BRIDGE, Biotechnology Research for Innovation, Development and Growth in Europe (1990-1994). This continues the work of BEP, the Biomolecular Engineering Programme (1982-1986) and BAP, the Biotechnology Action Programme (1985-1989). Technical areas covered include information structures for biotechnological data, research into proteins, genes, genomes and cloning, cellular biology, investigation of toxicity and pharmacological activity and safety assessments associated with the release of genetically engineered organisms.

Another major programme in this area is ECLAIR, European Collaborative Linkage of Agriculture and Industry through Research (1988-1993). This is a programme for biotechnology based agro-industrial research and technological development.

There are several programmes in the area of medical and health research. The specific DG XII programme on medical and health research (1987-1991) covers three sub-programmes dealing firstly with the health problems of birth and age, secondly with public health services and resources and thirdly with the impact of nutrition and of the intake of drugs on health. There is a specific Human Genome Research programme (1990-1992) in the field of predictive medicine. Medicine is also one of the eleven areas in which COST projects have been implemented.

The European Coal & Steel Community (ECSC) is responsible for the well established series of medical research programmes which concern the protection of workers against risks arising from work in

coal mines and iron mines, in coking plants, and in the iron and steel sector. Early work was particularly concerned with respiratory diseases and with the carcinogenicity of atmospheric pollutants. The objectives of the current, fifth, medical research programme (1988-1992) include both preventive measures and the promotion of projects to apply the results of the earlier medical research programmes. In addition therefore to studies of occupational cancers, respiratory diseases, cardiovascular disease, skin disease and diseases of the vertebral column related to physical stress at work, the programme now includes the development of monitoring methods and a programme of training and information.

This is closely co-ordinated with the ECSC programmes "Industrial Hygiene in Mines", the current programme, (1990-1993), being the sixth in the series. Current activities concern not only the measurement and control of pollutants, particularly dust, but also a determination of their role in occupation-related diseases, and the establishment of standards for minimising the risk of pneumoconiosis. Other projects deal with the problems of noise and vibration.

Other current programmes also include activities related to the biological sciences although their main areas of concern are the subject of other chapters of this book. In medicine these include the programmes AIM, on informatics, and STD, on tropical medicine, described in chapters 3 and 13. The STEP programme on environmental protection in chapter 11, and much of the RTD work in the agricultural area described in chapter 8, also have considerable biological content.



### **BIOREP**

The BIOREP database is available free of charge on the ECHO host. It describes biotechnological projects carried out in the 12 Member States of the European Community. BIOREP can also be ordered in an abridged, printed, form.

Contact ECHO Customer Services, PO Box 2373, L-1023 Luxembourg / ECHO Help Desk: tel + 352 48 80 41 : fax + 352 48 80 40  
English



### **BIOREP permanent inventory of biotechnology research projects in the European Communities**

The abridged printed version of the BIOREP database was published in January 1990.

EUR 12574 EN

Contact The Library of the Royal Nederland Academy of Arts and Sciences, P.O.Box 41950, NL-1009 AE, AMSTERDAM, The Netherlands  
English



### Evaluation of the fourth Medical and Health Research Programme (1987-1991)

An evaluation of the Fourth Medical and Health Research Programme (1987-1991) was published in July 1990 as research evaluation report number 44.

EUR 13001 EN  
Contact OOPEC  
English



### European biotechnology information service (EBIS)

The EBIS newsletter is produced by CUBE (Concertation Unit for Biotechnology in Europe) and covers worldwide developments in biotechnology, news and analysis of current issues, and reports on Community activities. EBIS is also available in electronic form as a bulletin board on the Microbial Data Strain Network (MSDN).

Contact CUBE, CEC, DG XII, 200 rue de la Loi,  
B-1049 BRUSSELS, Belgium : fax + 322 235 53 65  
English



### ECLAIR: synopsis of R&D projects (1st and 2nd waves)

A report from the ECLAIR programme, published in November 1990, contains synopses of proposals grouped into the following areas of research: oils; lignocellulose; carbohydrates; animals; biological pest control; production and storage.

Contact CEC, DG XII, SDME 2/23 ref: ECLAIR, 200  
rue de la Loi, B-1049 BRUSSELS, Belgium :  
fax + 322 236 43 22  
English



### Biotechnology glossary

A biotechnology glossary was prepared by the Terminology Help Desk (SVP) of the Brussels translation service of the CEC in 1990.

EUR 12899 1072pp.  
Contact Elsevier Science Publishers BV, P.O. Box  
211, 1000 AE, AMSTERDAM, The Netherlands  
English/French/German/Italian/Dutch/Danish/  
Spanish/Portuguese/Greek



### Biomedical and health research

The newsletter *Biomedical and Health Research* includes a news roundup and sections on biomedical engineering, health services, medical biology, cancer and epidemiology, with a supplement listing the concerted actions of the European Community R&D programme Medical and Health Research 1987-1991 research network.

Contact Medical Research Division, CEC, DG XII/  
F-6, 200 rue de la Loi, B-1049 BRUSSELS, Belgium : fax  
+ 322 235 53 65  
English,French



### Biotechnology R&D in the EC (Vols I & II): Biotechnology Action Programme (BAP) 1985-1989

The final report from the BAP Programme covers work done in the years 1985-89. It catalogues the main achievements of the programme and also presents detailed final reports from the contractors. The range of topics covered includes bioinformatics, cultures collections, bioreactors, protein design, genetic engineering of plants, animals and microbes, risk assessment and pharmatoxicology.

EUR 12938 EN  
Contact Editions Scientifiques Elsevier, rue Buffon  
29, 75005 PARIS, France : tel +331 4707 11 22  
English



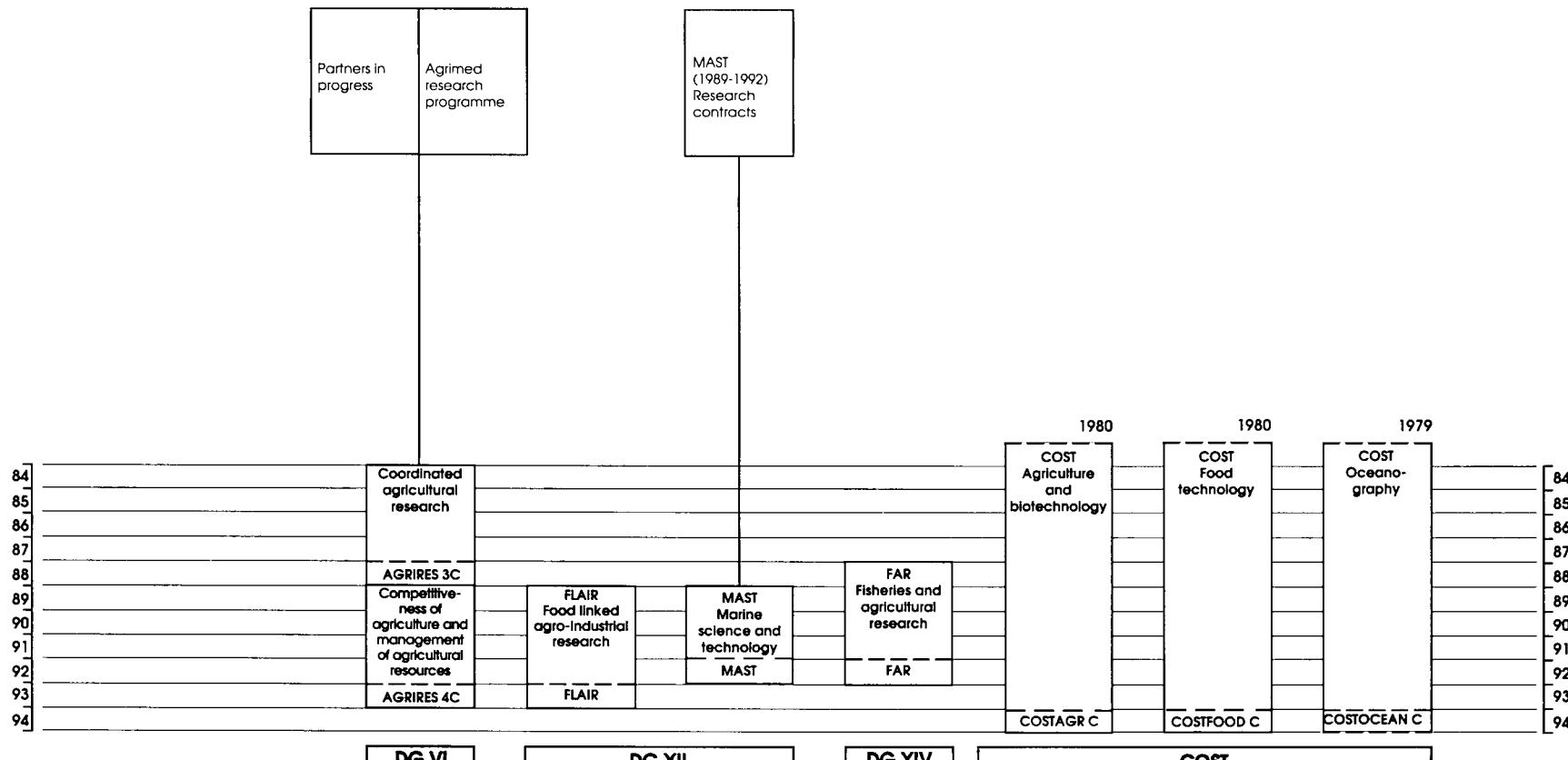
### European Community atlas of 'avoidable death' : second edition

The atlas examines statistics of unnecessary or untimely deaths to provide indicators of aspects of health service provision where a problem may exist. It attempts to look systematically at the use of mortality data.

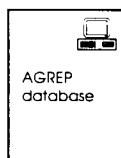
EUR 11157 EN 349pp.  
Contact Oxford University Press, Walton Street,  
OXFORD OX2 6DP, United Kingdom  
English

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**8. Agricultural and Marine  
Resources and Products**



**Agricultural and  
Marine Resources  
and Products**



## **□ 8. Agricultural and Marine Resources and Products □**

Work under this heading involves research into agriculture, food science and technology, marine science and technology, and fisheries.

The current activities of the agricultural research programme (1989-1993) include work on diversification of agricultural methods to new and improved crops, livestock systems, woodland production systems and the control of pests, diseases and weeds. It also includes studies of the effects of production techniques on product quality, specific regional actions and dissemination of agricultural research information.

The FLAIR programme (1989-1993) deals with food linked agro-industrial research. It covers three sectors: the assessment and enhancement of food quality and diversity; food hygiene, food safety and toxicology; and nutrition.

The MAST programme (1989-1992) of marine science and technology covers basic and applied marine science, particularly focused on coastal waters, water quality and the marine environment. The Fisheries and Agriculture Research programme FAR (1988-1992) deals with fisheries man-

agement, fishing techniques, aqua-culture and the improved handling and processing of fishery products.

There are also COST projects in support of actions in these areas, specifically agriculture and biotechnology, food technology and oceanography.

Other current programmes also include activities related to agricultural and marine resources and products, although their main areas of concern are the subject of other chapters of this book. The most important of these is ECLAIR, a programme for biotechnology based agro-industrial research and technological development, details of which are given in chapter 7 on 'Biological Sciences'. The remote sensing work of the JRC also presents studies relating to agriculture, in chapter 6 on 'Physical and Exact Sciences'. The STD programme, described in chapter 13, 'Horizontal activities', includes a sub-programme on tropical and subtropical agriculture. The CADDIA programme concerns information systems for the agricultural market organisations. Details may be found in chapter 3 on 'Information Technology and Telecommunications'.



### **Partners in progress: Coordinated agricultural research (1984-1988 programme)**

The working of the third 'Coordinated agricultural research programme' and some results and endeavours of the various sub-programmes, are described. More detailed scientific information may be found in the published proceedings of meetings and workshops which are reviewed in the text and listed in an annex.

EUR 11323 EN,ES,DE,FR,IT                          89pp.  
Contact OOPEC

English,Spanish,German,French,Italian

ECU 8.75



### **Agrimed research programme: summary report (1984-88) : Programme de recherche Agrimed: rapport final de synthèse (1984-1988)**

This report provides a synthesis of research work in the Agrimed sub-programme. This aimed to improve Mediterranean agriculture through economic and technical developments such as diversification and adaptation of production methods, management and improvement of woodland grazing, control of growing conditions and protection of the environment.

EUR 12852 EN-FR                          66pp.  
Contact OOPEC  
English-French

ECU 6.25



## AGREP

The AGREP database covers agriculture in an extensive sense of the word, including fisheries and forestry, land use and development, nature conservation, veterinary medicine, food sciences and technology, as well as agricultural economics and rural sociology.

Contact AGREP Secretariat, CEC, DG VI/F-II-2,  
86 rue de la Loi, B-1040 BRUSSELS, Belgium  
English



## AGREP permanent inventory of agricultural research projects in the European Communities

The AGREP inventory contains the main listing of the database with the titles of the research projects, complemented by basic information on each project, such as the names of researchers, country and research organization and available publications.

Contact AGREP Secretariat, CEC, DG VI/F-II-2  
86 rue de la Loi, B-1040 BRUSSELS, Belgium :  
English



## Reports of the Scientific Committee on Animal Nutrition (Seventh series- 1988)

The seventh series of reports of the Scientific Committee concerns the use of maduramycin for the prevention of coccidiosis in fattening chickens, of flavophospholipol as a growth promoter for rabbits and of avilamycin in pigs, of virginiamycin for fattening cattle, and of astaxanthin in salmon and trout.

EUR 12824 DE,EN,FR,IT 37pp.  
Contact OOPEC  
German,English,French,Italian ECU 5



## Reports of the Scientific Committee for Food (Twenty-fourth series)

The Scientific Committee for Food advises on problems relating to human health and safety arising from the consumption of food, and in particular food composition, processing, additives and contaminants. The present series relates to infant formulae, milks and weaning foods.

EUR 13140 ES,DA,DE,GR,EN,FR,IT,NL,PT 38pp.  
Contact OOPEC  
Spanish,Danish,German,Greek,English,French,  
Italian,Dutch,Portuguese ECU 5



## Reports of the Scientific Committee for Pesticides (Third series)

The reports of the Scientific Committee for Pesticides provide advice on scientific and technical problems relating to the marketing and use of pesticides. The current series relates to the safety in use and maximum permitted residue levels of alachlor, captafol, captan, folpet, lindane and thiram.

EUR 13081 DE,EN,FR,IT 77pp.  
Contact OOPEC  
German,English,French,Italian ECU 7.50



## Marine science and technology (MAST) R&D programme 1989-1992: Research contracts

A report describes each project under the MAST programme. The publication is subdivided under the headings oceanography, coastal zone science and engineering, and marine technology. It provides an abstract of each of the research contracts concluded so far, contact points for the scientific leaders and a list of the other major participants.

EUR 13437 EN 53pp.  
Contact MAST Programme Office, CEC,  
DG XII, 200 rue de la Loi, B-1049 BRUSSELS, Belgium:  
fax + 322 236 30 24  
English ECU 6.25



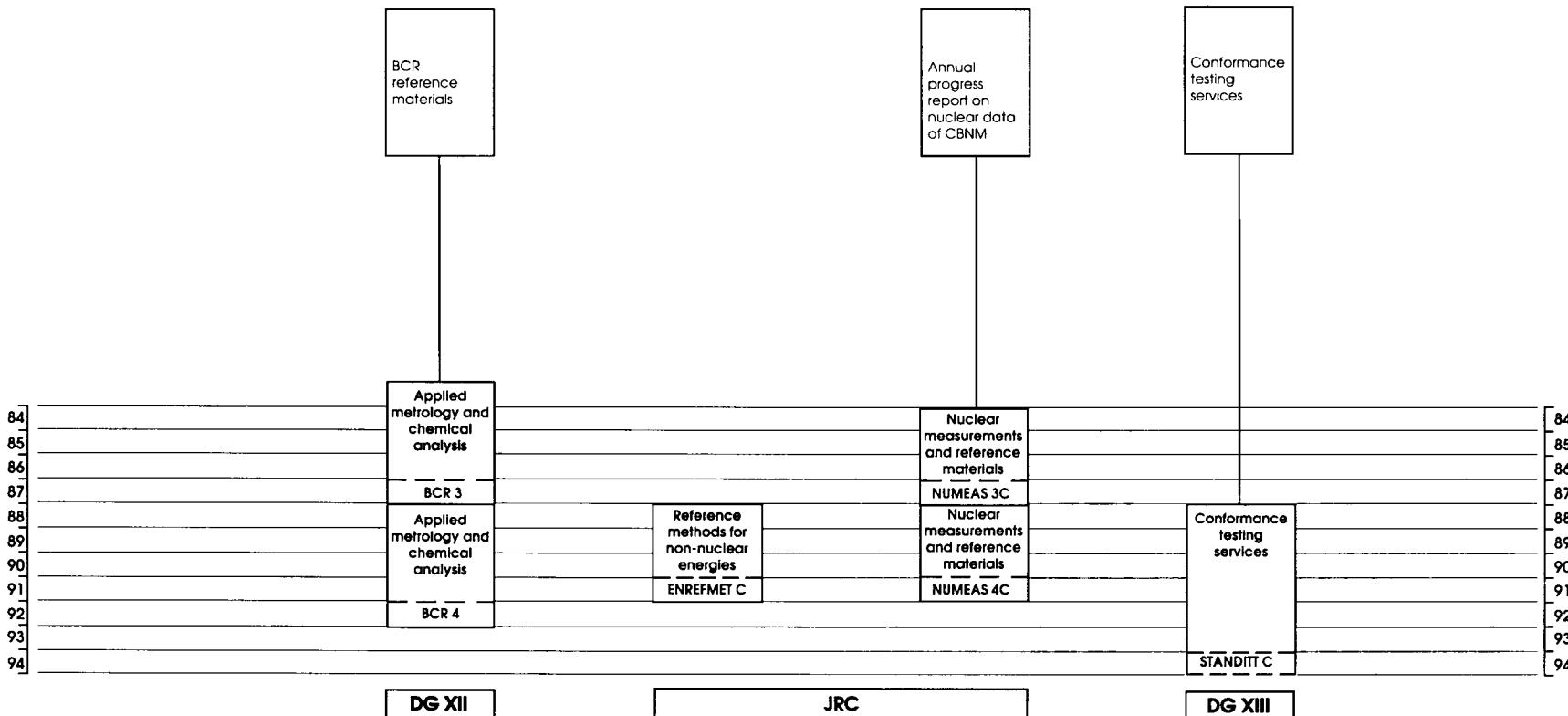
## Technology for the marine environment

An information pack, published in January 1990, contains technical specification sheets describing the characteristics of prototype instrumentation, demonstration projects or services developed by the Environment Institute and the Institute for Remote Sensing Applications of the JRC, for studies of the marine environment.

EUR 12697 EN 12pp.  
Contact Institute for Remote Sensing Applications/  
Environment Institute, JRC, I-21020 ISPRA, Italy : fax  
+ 39 332 789 111  
English

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**9. Measurements and Standards**



## Measurements and Standards

## **□ 9. Measurements and Standards □**

The Community Bureau of Reference, usually known as BCR, carries out its own series of research and development programmes in the fields of applied metrology and reference materials. The current programme, the fourth, runs from 1988 to 1992. This work concerns inter-comparison campaigns for the improvement of accuracy of methods of measurement and instruments and for quality control purposes. The BCR is also responsible for the establishment and certification of reference materials. The major part of the analyses deal with food, agriculture, pollutants, biomedical substances, metals and surface analysis of materials.

The Institutes of the Joint Research Centre implement two programmes on energy reference methods and on nuclear measurements, both currently covering 1988-1991. The former deals with reference methods for non-nuclear energies, such as solar power, photovoltaics, active or passive systems and energy conservation systems. The latter programme determines nuclear data for standards applications, fission technology and fission applications. It also includes radio-nuclide technology, the metrology of nuclear fluence and dose and the preparation of nuclear reference materials.

DG XIII has a programme on conformance testing services, STANDIT (1988-) which aims to provide both tools and facilities for testing and certification of products in the information technology and telecommunications area, so that products may be guaranteed to conform to the agreed operational standards and to be compatible with other products.

Other current programmes also include activities concerned with measurements and standards, although their main areas of concern are the subject of other chapters of this book. In industry and technology in chapter 2, the programme on the reliability of structures in particular is concerned with methods of measurement and standards for materials and components. Measurement methods, reference materials and standards activities are also part of many programmes in the fields of information technology and telecommunications, nuclear and non-nuclear energy, food technology, the environment and environmental protection, chapters 3, 4, 5, 8 and 11.



### **BCR reference materials**

The BCR has published a catalogue, including an index and price list, of certified reference materials made available by the BCR for use in laboratories to improve their analysis of major and trace elements for studies of the environment, food and agriculture, biomedical measurements, physical properties and industrial products.

Contact Community Bureau of Reference (BCR),  
200 rue de la Loi, B-1049 BRUSSELS, Belgium : fax + 322 235 80 72  
English



### **Annual progress report on nuclear data of the Central Bureau for Nuclear Measurements**

In addition to the full annual report, covering work on nuclear measurements and reference materials, described in Chapter 1, the CBNM at Geel in Belgium publishes an annual report on nuclear data (nuclear data standards, nuclear data for fission technology, nuclear data for fusion technology, special studies) and nuclear metrology (radionuclide metrology, metrology of neutron flux and dose).

EUR 12822 EN  
Contact Central Bureau for Nuclear Measurements, Steenweg op Retie, B-2240 GEEL, Belgium : fax + 321 458 42 73  
English



### **Conformance Testing Services**

An information pack on the work of the Conformance Testing Services comprises fact sheets covering testing and certification projects in the following fields: OSI applications; OSI intermediate layers; local area networks; telecommunications; language compilers; operating systems; computer graphics; databases.

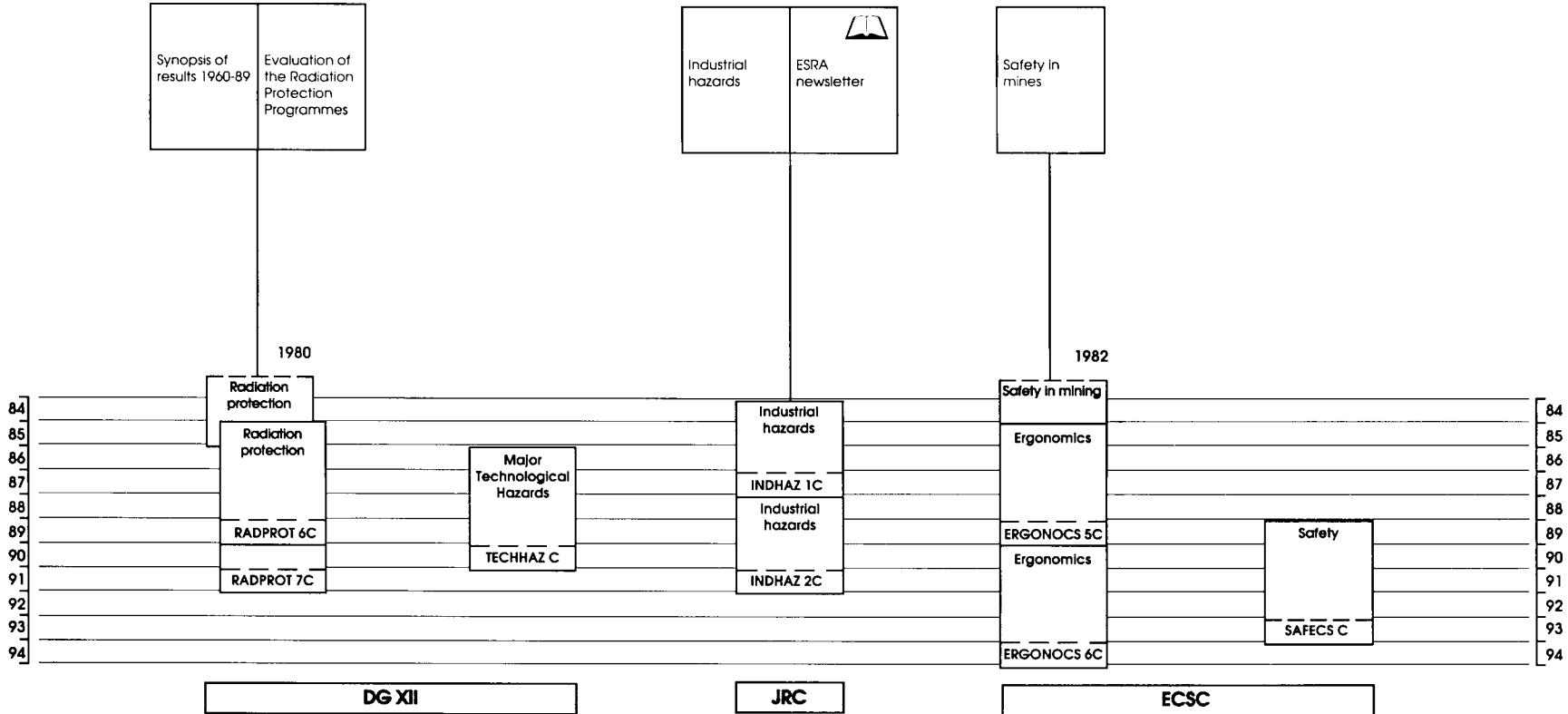
*EUR 12841 EN  
Contact OOPEC  
English*

*36pp.*

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## **□ 10. Protecting Man □**



## **□ 10. Protecting Man □**

Programmes in this area are concerned with the safety and protection of man against radiation, technological hazards and industrial hazards.

The long running series of radiation protection programmes initially was concerned with the effects on man of ionising radiation, its measurement by dosimetry and the behaviour of radionuclides in the environment, particularly as a result of nuclear accident scenarios. The emphasis of the current radiation protection programme (1990-1991) is on the risks, consequences and management of human exposure to radiation from all sources.

The major technological hazards programme (1986-1990) is concerned with the consequences of accidents, particularly as these are related to technological development. Research covers the safety and reliability of existing and alternative technologies and the assessment and management of risk. The industrial hazards programme (1988-1991) implemented by the Joint Research Centre (JRC), deals with risk analysis methodologies, interactive decision support (IDS) systems for analysis and management of risk on industrial systems involving hazardous chemicals, and investigations of runaway chemical reactions.

The ergonomics programme (currently 1990-1994) of the European Coal & Steel Community (ECSC)

is concerned with matters such as the inherent safety risk resulting from man/machine incompatibility, the study of the ergonomics of production plant and equipment with a view to improving working conditions, health and safety, and the ergonomics of materials handling and transportation. This is related in particular to steel making and mining operations. The ECSC was also responsible for an earlier programme on safety in mining (1982-1986), which related to hazards such as fires, explosions, rock or gas outbursts and to the development of safer working methods for the mining industry. The current safety programme (1989-1993) is concerned with safety aspects of new technological processes both in the steel industry and in mining.

Other current programmes also include activities related to safety and the protection of man against various hazards, although their main areas of concern are the subject of other chapters of this book. In the nuclear energy area, described in chapter 5, there is work on safety in both fission and fusion technologies. Medical and health research programmes described in chapter 7 naturally include some work in this area. Programmes concerned with the environment, in chapter 11, such as those on decommissioning and environmental protection, also include considerations of safety, health and hygiene.



### **Radiation protection research and training programme: review of radiation protection programme 1960-89: synopsis of results 1985-89**

A report, published in 1990, traces the evolution of the radiation protection programme over its 30 years of existence and gives a synopsis of the most important results of the 1985-89 radiation protection programme.

*EUR 13200 EN  
Contact OPEC  
English*

*245pp.*

*ECU 20*



### **Progress report - Radiation protection programme - 1985-89**

This is the final report of the radiation protection programme (1985-89). It outlines the research work carried out during the whole period, in more than 440 projects. They are grouped into six sectors: radiation dosimetry and its interpretation, behaviour and control of radionuclides in the environment, non-stochastic effects of ionising radiation, radiation carcinogenesis, genetic effects of ionising radiation and the evaluation of radiation risks and optimisation of protection.

*EUR 13268 DE/EN/FR  
Contact OPEC  
German/English/French*

*1116pp.*

*ECU 69*



### Radiation protection research and training programme : Radiation protection programme - revision 1988-89: Post-Chernobyl actions : Executive summaries

The report presents the rationale for and the principal results of the research initiatives undertaken to address the scientific problems created by the Chernobyl accident.

EUR 13199 EN  
Contact OOPEC  
English

214pp.  
ECU 20



### Radiation protection research and training programme 1990-91 : Catalogue of contracts

This catalogue contains summaries of contracts included in the 1990-91 programme, which is divided into three sectors: human exposure to radiation and radioactivity; assessment, prevention and treatment of the consequences of radiation exposure; risks and management of radiation exposure.

EUR 13387 EN  
Contact OOPEC  
English

311pp.  
ECU 27.50



### Evaluation of the Radiation Protection research programmes (1980-1984 and 1985-1989)

Independent experts evaluated the Radiation Protection Research Programmes (1980-1984) and (1985-1989), together with the research initiated as a consequence of the revision of the programmes after the Chernobyl accident, and proposals for future research and training programmes.

EUR 12145 EN  
Contact OOPEC  
English



### ESRA newsletter

The newsletter of the European Safety and Reliability Association (ESRA) includes conference announcements, EC, national and international activity news, together with technical contributions, guidelines and recommendations, reviews of proceedings, and notes of recent publications; forthcoming events are also listed. The newsletter was distributed free of charge until 1990 when distribution was suspended.

Contact OOPEC  
English



### 1987 progress report: industrial hazards

A report, published in 1988, summarises the results of the first Industrial Hazards research programme (1984-1987), comprising research on industrial safety and reliability assessment, management of industrial risk, and experimental and theoretical studies on run-away reactions.

EUR 11879 EN  
Contact OOPEC  
English



### Safety in mines: final report on the first research programme, 1976-1981

This summary report, published in 1987, presents the results of research carried out under the "Safety in Mines" programme and ascertains to what extent solutions were found to the problems. The programme was divided into eight themes: fires and underground combustion; explosions; rescue; surveillance and telemetry; methods of working; electricity; metallurgy; accidents.

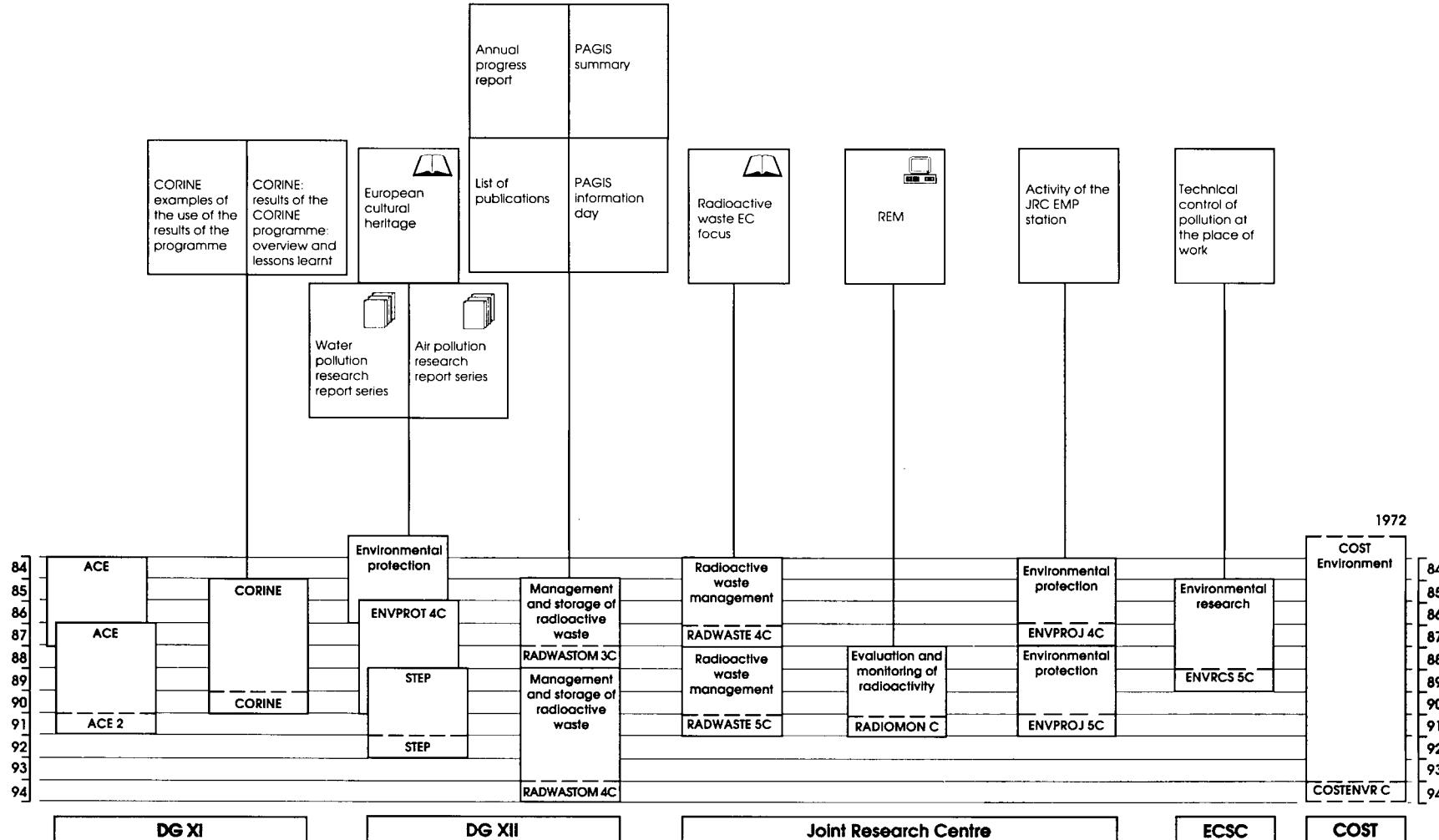
EUR 10873 DE,EN,FR  
Contact OOPEC  
German,English,French

140pp.  
ECU 11.60

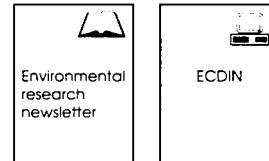
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**□ 11. Protecting the Environment □**

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## **Protecting the Environment**



## **□ 11. Protecting the Environment □**

The Framework Programme involves three environmental research and development programmes, managed by DG XII. STEP (Science and Technology For Environmental Protection) covers specific research in ecology and conservation, cultural heritage, environmental protection technologies and major technological hazards. The research topics covered in the current programme (1989-1992) are :-

- health effects of pollutants
- ecological effects of pollutants
- assessment of chemicals
- air quality, water quality, soil quality
- noise research
- eco-system research
- waste research
- clean technologies
- the scientific basis for environmental legislation and management

The second DG XII programme, EPOCH (European Programme on Climatology and Natural Hazards) is concerned with global environmental issues, and the third, MAST (Marine Science and Technology), was established to improve understanding of the marine environment. Both are covered in earlier chapters of this book.

Although more limited in scope, similar projects to those funded by STEP and EPOCH have been undertaken through concerted actions under the COST programme.

DG XI has had two main research and information programmes in this area. ACE (Action by the Community relating to the Environment) (1987-91) was a demonstration programme which provided financial support in the following six areas: clean technologies, recycling of waste, environmental monitoring and analysis, restoration of contaminated sites, protection of biotopes, protection and restoration of degraded land. This has been superseded by LIFE, the more wide-ranging Community financial instrument for the environment, which comes into effect in 1991.

The CORINE programme (1985-90) was concerned with the collection, coordination and dissemination of information on the environment and natu-

ral resources in the EC, and aimed to ensure the consistency of information between Member States. The information system established under CORINE will be continued and expanded under the new European Environmental Agency.

The Joint Research Centre (JRC) also has a programme on environmental protection. Over the period 1987-1990 this has been mainly concerned with research into environmental protection, remote sensing of land and sea environments, industrial hazards and the maintenance of the ECDIN database on the environmental effects of chemicals. New work areas have included genetically engineered substances, environmental studies on the Mediterranean Basin, the European monitoring network and analytical processes for a food and drugs laboratory.

The European Coal and Steel Community (ECSC) implemented a programme on the environment over the period 1985-89, concerned with technical control of pollution from iron and steel works, both in the workplace and in the external environment. This included measures to combat air pollution, freshwater and sea water pollution, the disposal of liquid and solid wastes, and noise abatement. Management techniques and procedures, such as environmental impact studies, emission inventories and forecasting systems were also investigated.

The Radioactive Waste Storage and Management Programme (1990-94) of DG XII involves waste management studies and the construction and operation of four underground facilities for the storage of high level radioactive waste at sites around the Community. The Radioactive Waste Programme (1988-1991) of the JRC is mainly concerned with the operation of the PETRA facility, actinide monitoring, the characterisation of vitrified high level waste, and the safety of geological waste disposal. Other activities, such as PAGIS and MIRAGE, are jointly coordinated by the JRC and the Radioactive Waste Storage and Management Programme. The JRC is also responsible for a programme on the monitoring of radioactivity (1988-1991).

Other current programmes also include activities related to the protection of the environment, although their main areas of concern are the subject of other chapters of this book. Many of the programmes described under "Nuclear Energy",

chapter 5, are concerned with radioactive wastes. Similarly the radiation protection programme in chapter 10, "Protecting Man", is concerned with radiation monitoring.



### **Environmental research newsletter**

The Environmental Research newsletter surveys the activities of the EC connected with environmental research problems and legislation, tackling one specific area in each issue, e.g. an overview of the programmes, aspects of air quality, human health, environmental chemicals, waste research and reduction of pollution, water, soil and ecosystem research as well as climatology and natural hazards.

Contact Institute for the Environment, JRC, I-21020 ISPRA (Va.), Italy : fax + 39 332 789 453  
English



### **ECDIN**

The ECDIN (Environmental Chemicals Data and Information Network) database offers access to factual data on chemicals and their impact on man and the environment. ECDIN was developed and is maintained by the JRC Ispra. It is available to the public online through the main international networks. Commercial distribution has been entrusted to the Danish host DATACENTRALEN IS, Copenhagen, which must be contacted direct for subscriptions.

Contact I/S DATACENTRALEN af 1959, Retortvej 6-8, DK-2500 Valby, COPENHAGEN, Denmark  
English



### **Air pollution research reports series**

A series of Air Pollution Research Reports is issued by the STEP programme from time to time, on topics of particular interest. A recent example is Research Report 33, Atmospheric Oxidation Processes, (Proceedings of a joint COST 611/EUROTRAC workshop held in Madrid, September 1990).

Contact STEP Office, CEC, DG XII, 200 rue de la Loi, B-1049 BRUSSELS, Belgium : fax + 322 236 30 24



### **Water pollution research reports series**

A series of Water Pollution Research Reports issued on an occasional basis by the Environment programme. A recent example is no. 25, Anaerobic biodegradation of xenobiotic compounds (proceedings of a workshop organised within the framework of the Concerted Action 'Organic Micropollutants in the Aquatic Environment', COST 641, November 1990).

Contact STEP Office, CEC, DG XII, 200 rue de la Loi, B-1049 BRUSSELS, Belgium : fax + 322 236 30 24  
English



### **Fifth ECSC research programme on technical control of nuisances and pollution at the place of work and in the environment of iron and steelworks**

A report, published in 1986, describes the work of the fifth ECSC research programme on the technical control of nuisances and pollution at the workplace. It includes reports of research results, financial aspects and other details of the programme.

EUR 10338 128pp.  
Contact OOPEC  
All EC languages



### **European cultural heritage**

The STEP programme has produced a new periodical entitled *European cultural heritage*. This periodical includes interdisciplinary notes, reports on EC environmental protection R&D, abstracts on applied and experimental science, book reviews, reports, details of forthcoming events and news briefs. The periodical is issued free to subscribers 3-4 times a year.

Contact The Editor (*European Cultural Heritage*), Environment Research Programme, CEC, DG XII/E, 200 rue de la Loi, B-1049 BRUSSELS, Belgium : fax + 322 236 30 24  
English



### **CORINE : Examples of the use of the results of the programme 1985-1990**

A recent (1990) publication provides an introduction to the CORINE programme. It discusses the CORINE data system, data analysis and the supply of information, methodological contributions, transfer of knowhow, and catalytic effects on the creation of compatible information systems. The annexes include a list of CORINE publications.

Contact CEC, DG XI, 200 rue de la Loi, B-1049  
BRUSSELS, Belgium : fax + 322 235 01 44  
English, French



### **CORINE: results of the CORINE programme (1985-1990): overview and lessons learnt**

The evaluation report of the CORINE programme, published in 1991, outlines the programme's objectives and results, the exploitation of the information gained, the lessons learnt and the recommendations ensuing from the programme.

EUR 13286 DE,EN,ES,FR,IT,PT 90pp.  
Contact OOPEC  
German, English, Spanish, French, Italian, Portuguese



### **Activity of the JRC EMEP station: 1989 annual report**

This report gives a general overview of air pollution monitoring at the EMEP station of the JRC Ispra for the year 1989. The main part of the report describes the measurement programme, sampling and analytical techniques, data evaluation and pollutants in air, atmospheric particulate material and precipitation.

EUR 12865 EN  
Contact OOPEC  
English



### **REM**

Following the nuclear accident at the Chernobyl power plant, the JRC Ispra created this database to facilitate the storage, handling and retrieval of the large set of radioactivity measurements performed in the EC countries. REM (Radioactivity Environmental Monitoring) is suitable for scientific applications such as studies on the environmental behaviour of radio-elements and verification of relevant physical and mathematical models.

Contact Institute for the Environment, JRC, 21020  
ISPRA (Va.) Italy : fax + 39 332 789 453  
English



### **Radioactive waste EC focus**

A newsletter from the Radioactive Waste programme outlines the activities of the European Community in the field of radioactive waste management. The newsletter is distributed free to subscribers, 2-4 times a year, and includes details of PAGIS, programme management, progress and achievements of research, the JRC's contributions, forthcoming events and publications.

Contact CEC, DG XII/D-2, 200 rue de la Loi, B-1049  
BRUSSELS, Belgium : fax + 322 236 20 06  
English



### **Radioactive waste management and disposal**

This book describes the proceedings of the third EC conference on Radioactive Waste Management and Disposal. It presents results of the latest five year programme (1985-1989). Topics covered include reprocessing, treatment and conditioning of waste, development of waste packages, characterisation, construction and operation of sites for underground repositories, the evaluation of long-term radiological impact and the elaboration of joint management strategies.

EUR 13389 EN 718pp.  
Contact OOPEC  
English



### **The Community's R&D programme on management and storage of radioactive waste: Shared cost action: List of publications**

This list of publications (published 1990) covers reports, proceedings, communications and information leaflets produced and published in the framework of the cost-sharing research programme of the EC on "Radioactive Waste Management and Disposal".

EUR 12935 EN 57pp.  
Contact OOPEC  
English ECU 6.25



### **PAGIS summary**

A report, published in 1988, describes task 5 of the programme on management and storage of radioactive waste known as the PAGIS project (Performance Assessment of Geological Isolation Systems) and evaluates the efficiency of disposal systems in selected geological formations.

EUR 11775 EN  
Contact OOPEC  
English



**Proceedings of the PAGIS Information Day,  
Madrid, 30 June 1989**

This publication concerns the geological disposal of highly radioactive waste. The PAGIS Information Day was held in order to present the findings and results of the project and to provide a forum for discussion.

*EUR 12676 EN* 150pp.  
*Contact OPEC*  
*English* ECU 12.50



**The HAW project: Demonstration facility for  
the disposal of high-level waste in salt**

This synthesis report describes the HAW project, performed in the Asse salt mine. 30 vitrified highly radioactive canisters will be emplaced at the 800 m level for a five year testing period.

*EUR 13263 EN* 157pp.  
*Contact OPEC*  
*English* ECU 13.75



**CEC project Mirage: Second phase on mi-  
gration of radionuclides in the geosphere**

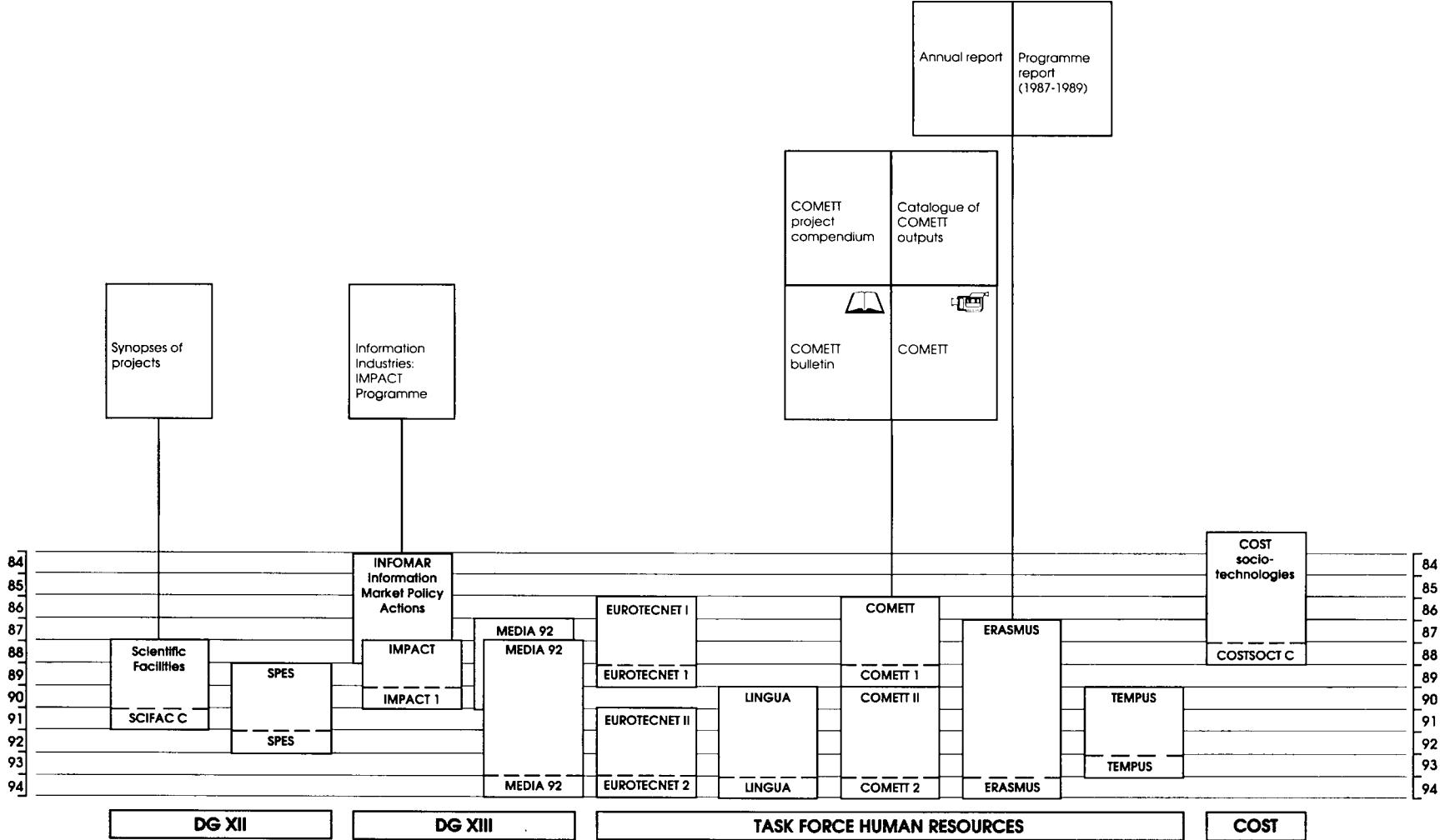
A second phase of the Community coordinated project, MIRAGE (Migration of Radionuclides in the GEosphere) was launched in 1986. The present report (published in 1990) brings together reviews of work done in the four research areas of this phase for 1989, and therefore constitutes an update of the previous reports, EUR 11589 and 12229. This project was part of the EC R&D programme on radioactive waste management (1985-1989).

*EUR 12858 EN* 245pp.  
*Contact OPEC*  
*English* ECU 20

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## **□ 12. Social and Economic Concerns □**

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**Social and Economic  
Concerns**

## **□ 12. Social and Economic Activities □**

The term social and economic activities, in the CORDIS classification scheme, includes educational activities, activities to promote regional development, and activities concerning the information industries. Some of these activities are supported by programmes of DG XII and DG XIII and programmes under the COST umbrella. Programmes associated with higher education or vocational training, particularly with reference to the introduction of new technologies, are overseen by the Task Force on Human Resources. Programmes included in this chapter are limited to those which involve some aspects of research or technological development, in accordance with the declared aims of this book.

DG XII has responsibility for the Scientific Facilities programme (1988-1991). The objectives of this programme are to support and facilitate access to European large scale scientific installations, and to provide the necessary education and training. DG XII is also responsible for the SPES programme (Stimulation Plan for Economic Science 1989-1992). This programme includes studies of the economics of European integration, the Community's internal market programme, economic growth, monetary issues, and trade, employment, health and social policy issues.

DG XIII was responsible for the first Information Market Policy Actions IMPACT programme (1988-1990). This dealt with the development of and improvement in the use of specialised information products and services of European origin. The programme MEDIA92 (Measures to Encourage the Development of the Industry of Audio-visual Production 1988-1992, extended to 1994) promotes the information industries concerned with film, video and television broadcasting. In particular, it supports technological development in key sectors such as graphic information, digital television and high definition television.

The COST socio-technologies programme (1983-1988) dealt with systems of socio-technologies

and industrial safety, with particular reference to the use of new technologies in the processing industries, the application of ergonomic principles in these areas, and the assessment and management of potential risk resulting from the use of these new technologies.

Four programmes of the Task Force on Human Resources are concerned with higher education. The ERASMUS programme (1987-1994) is concerned with the mobility of university students within the European Community. The TEMPUS programme (1990-1993) is concerned with mobility of students across Europe as a result of Community aid for the economic re-structuring of central and eastern Europe. The COMETT programme (currently 1990-1994) aims to link universities and technological enterprises, to analyse the effect of new technologies on qualifications and training needs, to provide training in the use of new technologies and to support initiatives for developing multi-media training systems in this area. The fourth programme, LINGUA (also 1990-1994), aims to promote foreign language competence within higher education in Europe.

A fifth programme of the Task Force on Human Resources in this area is the Eurotecnnet programme (currently 1991-1994), which aims to promote innovation in the field of vocational training in response to technological changes in the European Community and specifically the introduction of new information technologies.

Other current programmes also include work related to social and economic activities, although their main areas of concern are the subject of other chapters of this book. One of these is the DELTA programme, described in chapter 3, which deals with information technologies for advanced learning systems and learning technologies. Another programme called STRIDE, funded by DG XVI, is concerned with regional innovation and development through science and technology.



## Social Europe

This periodical, issued three times a year, deals with current social affairs in Europe. The contents mainly comprise extracts from the Official Journal, with introductions which set the legislation in context. In addition, a number of supplementary files are published, each dealing in depth with a single topic.

Contact OOPEC

English, French

Subscription ECU 13.50



### Synopsis of projects supported under the Large Installations Plan (1989-1992)

This booklet describes the research projects of all the installations selected for support. For each of the 17 projects there is a summary of the activities and objectives, and an indicative list of new users of the installation.

EUR 13540 EN  
Contact OOPEC

English

62 pp.  
ECU 5.00



### Large Installations Plan (1989-1992): Reports of the study panels

Final reports of the seven panels are presented, together with an analysis of the main needs and future developments in neutron beam sources, large magnetic fields, hydraulics, combustion technologies, earthquake engineering, oceanography and high power lasers.

EUR 13539 EN  
Contact OOPEC  
English

150 pp.  
ECU 6.25



### Information industries: IMPACT programme

This booklet describes the seven lines of action of the IMPACT programme in the context of the European information services market.

EUR 12589 ES, DE, EN, FR, IT  
Contact OOPEC

Spanish, German, English, French, Italian



## ERASMUS bureau

The ERASMUS bureau assists in the administration of the ERASMUS programme and Action II of the LINGUA programme. One of its functions is to provide a Help Desk facility for students, teaching staff, universities and other institutes of higher education.

Contact ERASMUS Bureau, 15 rue d'Arlon, B-1040 BRUSSELS, Belgium : tel + 322 233 01 11 : fax +32 2 233 0150 : telex 63528 English



### ERASMUS programme: report on the experience acquired in the application of the ERASMUS programme 1987-1989

An overview of the results and experiences to date of the ERASMUS programme is provided by the final report of activities of the 1987-1989 programme.

Contact ERASMUS Bureau, 15 rue d'Arlon, B-1040 BRUSSELS, Belgium: fax + 322 233 01 50 English



### Annual report ERASMUS programme 1989

The annual report for 1989 describes in greater detail programmes for university cooperation and associated initiatives.

Contact ERASMUS Bureau, 15 rue d'Arlon, B-1040 BRUSSELS, Belgium: fax + 322 233 01 50 English



## COMETT technical assistance unit

The COMETT programme promotes cooperation between universities and industry regarding training in advanced technology, especially in response to technological change. The Help Desk provides information to those who may wish to participate in COMETT initiatives such as transnational exchanges.

Contact COMETT Technical Assistance Unit, 14 rue Montoyer, B-1040 BRUSSELS, Belgium: fax + 322 513 93 46 English



### COMETT Bulletin

The COMETT bulletin is issued every 3-4 months free of charge; its most important features are articles of COMETT news, details of forthcoming meetings, and new publications and profiles of COMETT projects.

Contact COMETT Technical Assistance Unit, 14 rue Montoyer, B-1040 BRUSSELS, Belgium: fax + 322 513 93 46  
English,French



### Catalogue of COMETT outputs

A catalogue provides information about the output of all COMETT projects. It is divided into five sections according to the type of output published. These sections deal with training materials, training courses, studies, databases and newsletters.

Contact COMETT Technical Assistance Unit, 14 rue Montoyer, B-1040 BRUSSELS, Belgium: fax + 322 513 93 46  
English



### COMETT project compendium

The COMETT project compendium provides three indexes for the identification of projects by technology sector, by applicant Member State, by participating Member State. In addition, some overall COMETT statistics and the current list of COMETT national information centres are also given.

Contact COMETT Technical Assistance Unit, 14 rue Montoyer, B-1040 BRUSSELS, Belgium: fax + 322 513 93 46  
English,French



### COMETT

The COMETT programme has produced a video/slide show which sets out the objectives of the programme: to set up transfrontier training programmes which will help the technological and industrial development of a united Europe. (23 min 20 sec).

Contact COMETT Technical Assistance Unit, 14 rue Montoyer, B-1040 BRUSSELS, Belgium: fax + 322 513 93 46  
English



### LINGUA bureau

The main aim of the LINGUA programme is to encourage a quantitative and qualitative improvement in knowledge of foreign languages with a view to improving communication skills within the Community. The bureau has been set up to assist the Commission in the administration of the programme.

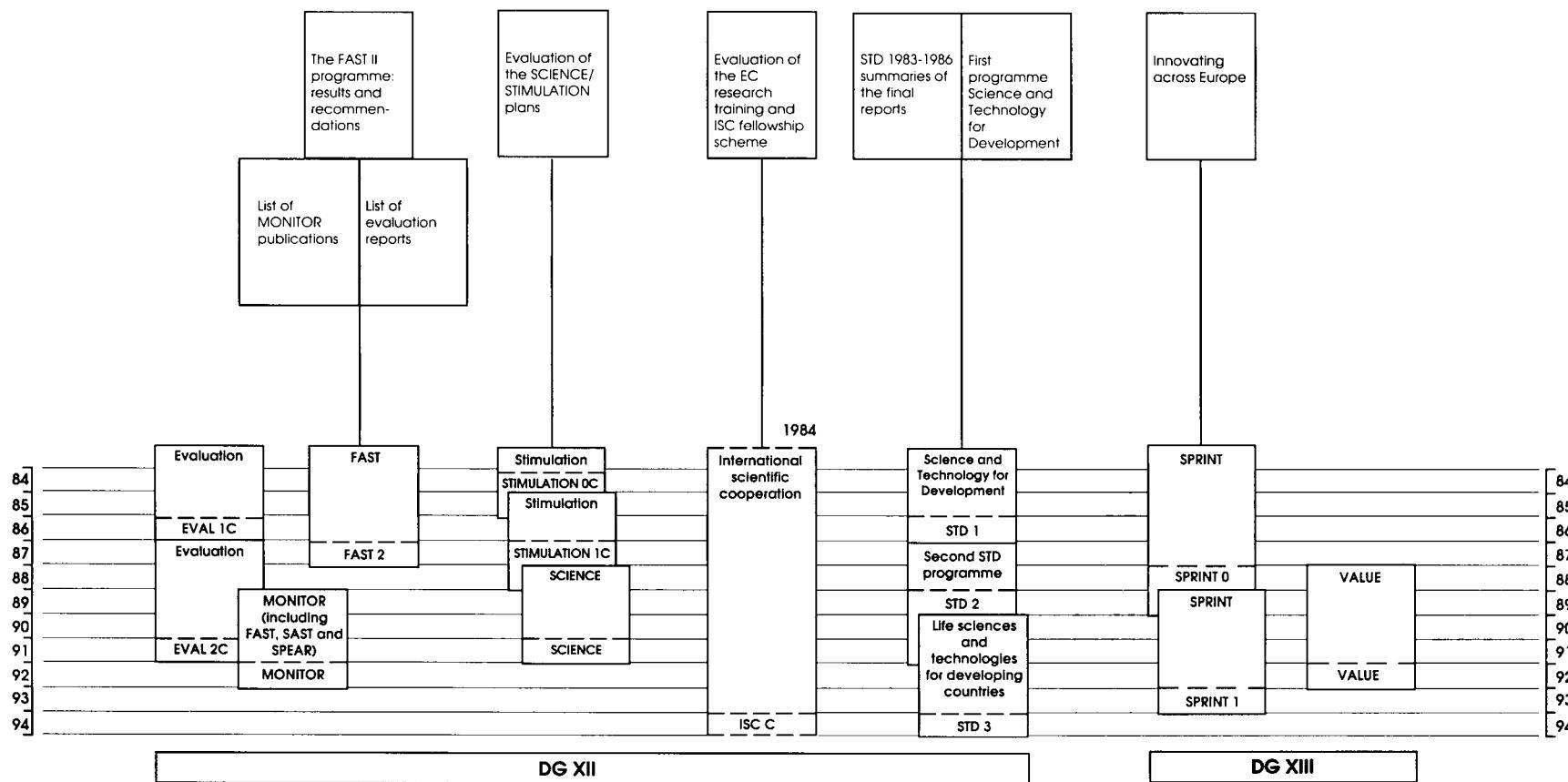
Contact LINGUA bureau, 2/3 place du Luxembourg, B-1040 BRUSSELS, Belgium:  
fax + 322 511 43 76  
English



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## **□ 13. RTD Horizontal Activities □**



## RTD Horizontal Activities

## **□ 13. RTD Horizontal Activities □**

The term 'horizontal activities' includes such concerns as policies, legislation, forecasting and evaluation activities, technology transfer, cross-boundary cooperation and scientific policies.

The current MONITOR programme (1989-1992) includes three sub-programmes: SAST (Strategic and Impact Analysis); FAST (Forecasting and Assessment in Science and Technology); and SPEAR (Evaluation of R&D programmes). The MONITOR programme therefore brings together the activities of strategic analysis with forecasting and evaluation in reference to research and technological development within the European Communities.

MONITOR follows on from two earlier series of programmes. The first of these was the series of Evaluation programmes, which dealt with retrospective assessments of Community R&D programmes, and the results achieved in relation to programme objectives and milestones. The same programmes also handled research into methods of evaluation and the development of evaluation methodologies. The second forerunner of the MONITOR programme was the earlier FAST programme, which was concerned with the future prospects for Europe in industrial systems and employment as a result of developments in new technologies for energy production and in renewable sources of energy.

The Stimulation programmes were set up in order to stimulate European scientific and technical cooperation and interchange in certain defined priority areas. The current SCIENCE programme (1988-1992) continues this work, but with emphasis on international cooperation and exchange between European research scientists. This programme now applies to all fields of the exact and natural sciences. On a broader basis the International Scientific Co-operation (ISC) programme exists to support the promotion and development

of scientific capacity within the developing countries of Latin America, Asia and around the Mediterranean. This is done by the exchange of scientific experts, the organisation of joint technical meetings and the coordination of joint research projects in the areas of physics, mathematics and applied sciences, chemistry, environment, life sciences, earth sciences, biology and agriculture. The STD (Science and Technology for Development) programmes (currently 1990-1994) are concerned with similar work on a broader basis. There are two sub-programmes, the first of which deals with tropical and sub-tropical agriculture and the second with medicine, health and nutrition in tropical and sub-tropical areas.

The SPRINT programme (Strategic Programme for Innovation and Technology Transfer 1989-1993) has the aim of strengthening European innovation networks, supporting projects for Community based innovative technology transfer and monitoring the European innovation environment.

Finally the VALUE programme (Valorisation and Utilisation for Europe 1988-1992) is concerned to promote the collection, dissemination and utilisation of the results of Community RTD. It also provides support for work on computer communications networks in the RTD field, the development of a common integrated computer communication infrastructure within Europe and studies of the requirements for confidentiality and integrity of information.

Other current programmes also include work related to horizontal activities, although their main areas of concern are the subject of other chapters of this book. Programmes primarily concerned with international cooperation in the STD field in Europe are the programmes TEMPUS, ERASMUS and COMETT, which are all described in chapter 12 on social and economic activities.



### Liste des publications = List of publications

A list of publications of the FAST programme, issued in July 1990, covers documents, series of reports, occasional papers, books published independently by external publishing houses, exploratory actions and strategic dossiers.

Contact CEC, FAST programme, 200 rue de la Loi, B-1049 BRUSSELS, Belgium : fax + 322 236 42 99



### The FAST II programme (1984-1987): results and recommendations

This series provides a global overview of the research carried out under the auspices of FAST during the period 1984-1987. The six titles currently available are:

- A synthesis report;
- Prospects for human work, industrial and organisational strategies;
- Europe of services: a turning point not to miss;
- Communications in the Europe of tomorrow: beyond technology;
- The future of the European food system;
- The use of agricultural and forestry resources in Europe: questioning the prevailing development models.

Contact CEC, FAST programme, 200 rue de la Loi, B-1049 BRUSSELS, Belgium : fax + 322 236 42 99  
English



### Science, technology and society: European priorities: results and recommendations from the FAST II programme: a summary report

A 1989 report on the FAST programme examines the future of European science, technology, economy and society. It considers the interactions between human work, production, services and communication. It reveals new paths in agriculture, food and natural resource developments, science, technology and society and the search for new rules in an organised Europe and in an emerging global economy.

Contact CEC, FAST programme, 200 rue de la Loi, B-1049 BRUSSELS, Belgium : fax + 322 236 42 99  
English



### R&D Evaluation Newsletter

The *R&D Evaluation Newsletter* is published four times a year in coproduction with the CPE (Centre de Prospective et d'Etudes) in Paris. The newsletter, now in its fifth year, includes details of work in progress, publications and seminars.

Contact The Editor, *R & D Evaluation Newsletter*, CPE, 1 rue Descartes, 75005 PARIS, France  
English/French



### L'évaluation des effets économiques des programmes de recherche de la Communauté européenne

Part of the SPEAR programme is concerned with evaluation methodologies. This report, published in 1990, considers the principal methods of evaluating the economic impacts of EC R&D programmes. It discusses the practicalities of the evaluation and problems which arise in putting the methodological proposals into practice.

EUR 13146 FR 88pp.  
Contact OOPEC  
French ECU 8.75



### The impact and utility of European Commission research programme evaluation reports

Another report, also published in 1990, examines the impact and utility of EC evaluation reports, concentrating on evaluations of DG XII programmes within the Framework programme together with the first and second reports of the ESPRIT Review Board. The major objective of the study was to improve the effectiveness of the Commission's R&D evaluation reports.

EUR 13098 EN 44pp.  
Contact OOPEC  
English ECU 5



### Evaluation of research and development: current practice and guidelines

The study on Current Practice and Guidelines for R&D Evaluation was designed to collect and analyse a selection of the existing information on the topic from a number of EC countries, USA, Canada, Nordic countries and international organizations.

EUR 13336 EN 97pp.  
Contact OOPEC  
English ECU 8.75



### Evaluation of the R&D programmes: list of evaluation reports

A list of available evaluation reports on Community RTD programmes is maintained, updated and periodically republished. For each evaluation report, the title, EUR number, date and language availability are given. To date, the list contains 60 titles.

Contact CEC, DG XII/H-4, 200 rue de la Loi, B-1049 BRUSSELS, Belgium : fax + 322 235 69 95  
English



### Evaluation of the SCIENCE/STIMULATION plans (1983-1985, 1985-1988, 1988-1992)

Research evaluation report number 41 includes the assessment of completed and ongoing research projects and recommendations for the future activities of the STIMULATION and SCIENCE programmes.

EUR 12854 EN  
Contact OOPEC  
English



### Evaluation of the EC research training fellowship scheme (1968-1989) and of the ISC fellowship scheme (1985-1989)

This report evaluates the European Community's research training fellowship scheme for European scientists from 1968-1989 and the equivalent scheme for scientists from Asian, Latin American and Mediterranean countries under the International Scientific Cooperation programme (ISC) from 1985 to 1989.

EUR 12931 DE,EN,FR 78pp.  
Contact OOPEC  
German,English,French

ECU 10



### Science and Technology for Development: first programme 1983-1986: medicine, health and nutrition in tropical and subtropical areas

Published in 1990, this guide includes for each project of the STD subprogramme on medicine, health and nutrition, a summary of the final report, contact names, presentations and publications.

EUR 12143 EN-FR 544pp.  
Contact CEC, DG XII, 200 rue de la Loi, B-1049  
BRUSSELS, Belgium : fax + 322 236 33 08  
English-French



### Premier programme: Science et Technique au service du Développement: projets de recherche 1983-1986: Sous-programme Agriculture tropicale et subtropicale = First programme: Science and Technology for Development: research projects 1983-1986: Subprogramme Tropical and subtropical agriculture

A comprehensive guide to research projects of the STD agricultural subprogramme in African, Caribbean and Pacific (ACP) states was published in 1990. 186 research projects are described, together with summaries of their final reports, contact names and keyword indexing in French and English.

Contact Centre Technique de Coopération Agricole et Rurale (CTA), Galvanistraat 9, 6716-AE EDE, The Netherlands : fax + 31 83 80 31 052  
French/English



### Innovating across Europe: the SPRINT network for inter-firm cooperation

This document, published in 1989, introduces the SPRINT network of centres for industrial technology. It comprises chapters on the building industry, the wood industry, the shoe industry, the clothing industry and the composite materials industry in Europe, plus an outline of the SPRINT programme itself.

EUR 11819 ES,DE,EN,IT,FR  
Contact OOPEC  
Spanish,German,English,Italian,French



### Fifth annual report: Strategic Programme for Innovation and Technology Transfer (SPRINT)

The fifth annual report on the SPRINT programme describes the actions undertaken in 1988, which included the establishment of intra-Community networks of technology transfer, developing exchanges of views and experience between the Member States and the Commission in order to improve the efficiency of innovation policies, specific actions for less-favoured regions and preparation of the proposal for the main phase of SPRINT (1989-93).

EUR 12625 EN 34pp.  
Contact OOPEC  
English

ECU 5



### **European technology transfer networks: proceedings of SPRINT conference, Lux- embourg, 10-12 July 1989**

This book was published in 1990 as part of the Innovation Series and comprises the proceedings of the first SPRINT Contractors' Conference, examining the lessons of the pilot phase (1984-1988) and how best to apply this knowledge to the main phase.

*EUR 12616 EN  
Contact OOPEC  
English*



### **Innovation in Europe's traditional industries**

This book presents the proceedings of the December 1989 SPRINT conference, when the programme had entered its main phase. The papers presented a review of the programme and discussed technology transfer, adoption and dissemination of new technologies, and improving quality and flexibility in traditional industries.

*EUR 13173 EN 206pp.  
Contact OOPEC  
English*



### **Training in innovation management**

This book from the innovation and technology transfer series presents the proceedings of a European symposium held in 1988, to discuss training needs in innovation management.

*EUR 11868 EN,FR 230pp.  
Contact OOPEC  
English,French ECU 18.75*



### **Patinnova '90: Strategies for the protection of innovation: Proceedings of the first Euro- pean congress on industrial property rights and innovation**

On the theme of technological innovation from Community RTD results, this volume comprises 30 contributions by leading experts in the field of patents and innovation. It addresses the issues of protection and filing policies, the role of patent attorneys and other patent consultants in filing and protection strategies, patent-assisted marketing of inventions from research institutions, patent disputes and litigations.

*EUR 13217 EN 337pp.  
Contact Kluwer Academic Publishers, PO Box 322,  
3300 AH DORDRECHT, The Netherlands: fax + 31 7  
818 32 7 or Deutscher Wirtschaftsdienst 22, D-5000  
KÖLN 51, Germany  
English*

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## **Annex A: CORDIS subject codes**

### **INDUSTRY AND TECHNOLOGY**

#### **IND - INDUSTRIAL MANUFACTURE**

Industrial processes; process control; plant design and maintenance; machine tools; advanced design and manufacturing techniques; use of automated tools.

#### **ELM - ELECTRONICS, MICRO-ELECTRONICS**

Electronic circuits, components and equipment; semiconductors; magnetic and superconductor materials and devices; power systems; printed circuits and integrated circuits (ICs); microwave technology and waveguides.

#### **IPS - INFORMATION PROCESSING, INFORMATION SYSTEMS**

Technical aspects of information systems; computer hardware and software; data processing; databases; systems design and documentation; advanced systems architecture; expert systems; artificial intelligence (AI); computer integrated manufacturing (CIM) systems; computer-aided design (CAD) systems; computer assisted translation (CAT) systems; cognitive science.

#### **TEL - TELECOMMUNICATIONS**

Communications systems based on electromagnetic waves; radio and television equipment and transmissions; high-definition television (HDTV); satellite communications; integrated broadband communications (IBC); remote sensing; radar; network value-added services.

#### **TRA - TRANSPORT**

Road, track and rail transport; design of vehicles and systems; transportation by sea and inland waterways; air transportation; pipelines; transport infrastructure; prototypes, trials and pilot schemes. (For transportation of hazardous materials see "Safety").

#### **AER - AEROSPACE TECHNOLOGY**

Aeronautical technology; aircraft; avionics; space exploration and technology.

#### **CON - CONSTRUCTION TECHNOLOGY**

Civil engineering; construction equipment; materials; components and methods; structural reliability; fire resistance; sound insulation; architectural design; building regulations; use of steel, wood, cork, concrete, etc for building purposes.

#### **MAT - MATERIALS TECHNOLOGY**

Plastics, rubber, polymers and composite materials; adhesives; ceramics; coatings; metals and alloys; iron and steel; steelworks, properties and utilization of steels; miscellaneous materials; properties of materials, corrosion and degradation.

#### **TEC - OTHER TECHNOLOGY**

Textile technology; laser technology; membrane technology; vacuum engineering; hydraulics; particle technology; other specific technologies not included elsewhere.

### **ENERGY**

#### **FIS - NUCLEAR FISSION**

Reactor operation; decommissioning; reactor physics; pressure vessels; safeguarding techniques; fuel fabrication and reprocessing; irradiation facilities; uranium; plutonium and thorium ores; transuranium elements/actinides; fissile materials (excluding radioactive waste management).

#### **FUS - NUCLEAR FUSION**

Tokamaks; plasma physics; electron dynamics and confinement; components and materials; instabilities and turbulence; MHD equilibrium; safeguarding techniques; electric and magnetic fields; impurities; ignition; modelling.

## **FFU - FOSSIL FUELS**

Coal and hydrocarbons; petroleum products; coke; by-products; transporting and storing of hydrocarbons; liquefaction and gasification of solid fuels; exploration; mining, processing and utilization.

## **RSE - RENEWABLE SOURCES OF ENERGY**

Tidal wave and wind energy; hydro-electric power; geothermal energy; energy from biomass; solar energy; photovoltaics; unconventional and alternative energies.

## **EST - ENERGY STORAGE, ENERGY TRANSPORT**

The storage, transmission and conversion of energy; use of hydrogen for energy transport; cells; secondary energy vectors.

## **ESV - ENERGY SAVING**

Energy conservation; increased efficiency of energy use; energy audits; heat transmission and storage; heat pumps; thermal insulation; use of waste heat.

## **OET - OTHER ENERGY TOPICS**

Demand analysis and utilization strategies; energy statistics; general energy topics not included elsewhere.

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## **PHYSICAL AND EXACT SCIENCES**

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### **MET - METEOROLOGY**

Climatology; weather forecasting; weather modification; collection and analysis of meteorological data.

### **EAR - EARTH SCIENCES**

Geology; mineralogy; geography; geophysics; geo-chemistry; soil science; cartography.

### **MST - MATHEMATICS, STATISTICS**

Mathematical theory; statistical analysis; operational research; numerical analysis; mathematical modelling. (See also application areas).

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## **BIOLOGICAL SCIENCES**

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### **MED - MEDICINE, HEALTH**

Human health (for veterinary medicine see "Agriculture"); the effect of specific environments; public

health; industrial medicine; medical research; nutrition; dentistry; nursing; physiology; pharmaceutical products; medical technology.

## **BIO - BIOTECHNOLOGY**

Microbiology; cellular and molecular biology; genetic engineering; enzyme engineering; assessment of risk; applications of biotechnology in health, agriculture, food, industry and the environment.

## **LIF - LIFE SCIENCES**

Biological sciences not included elsewhere; biochemistry; genetics; toxicology.

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## **AGRICULTURAL AND MARINE RESOURCES AND PRODUCTS**

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### **AGR - AGRICULTURE**

Livestock production, crops and crop production; managerial and economic aspects of agriculture; veterinary medicine; animal husbandry; control of weeds, pests and diseases of plants; land use; forestry; agro-technology; agro-industrial research.

### **FOO - FOOD**

Nutritional and toxicological properties of food-stuffs; processed agricultural and aquacultural produce; food additives; food containers and handling; food technology.

### **SEA - RESOURCES OF THE SEA, FISHERIES**

Marine science; oceanography; oceanology; exploitation of the seabed; fisheries; aquaculture.

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## **MEASUREMENTS AND STANDARDS**

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### **MEA - MEASUREMENT METHODS**

Test facilities and methods; applied metrology; biomedical analyses; chemical analyses; environmental analyses; verification methods; recording devices; non-destructive testing; online testing.

### **REF - REFERENCE MATERIALS**

Preparation and distribution of certified reference material (CRM) samples for standardisation, harmonization and intercomparison of analyses and measurements; technical specification of CRMs; storage and preservation of CRMs.

**STA - STANDARDS**

Technical standards; quality standards; national and international standards; harmonization of standards. (See also "Reference Materials").

**PROTECTING MAN AND HIS ENVIRONMENT****SAF - SAFETY**

Safety engineering; safety at work; assessment of risk; reliability of components and systems; industrial hazards; natural hazards; transportation of hazardous materials; accident analysis and reporting.

**ENV - ENVIRONMENTAL PROTECTION**

Measurement and detection of pollution; effects of pollutants; aerosols and particulate emissions; water quality; acid rain; soil pollution; ecology and radio-ecology; limitation/prevention actions on pollution.

**RAD - RADIATION PROTECTION**

Radiation shielding; dosimetry on man and radio-isotope effects on man, animals, plants and micro-organisms.

**RWA - RADIOACTIVE WASTE**

Management and storage of radioactive waste; radioactive waste and treatment; disposal in deep land or sub-seabed formations; remote handling; container materials and matrices.

**SOCIAL AND ECONOMIC CONCERN****SOC - SOCIAL ASPECTS**

Social sciences; use of human resources; ergonomics; social implications of new technology; social effects of technology.

**EDU - EDUCATION, TRAINING**

Education of children and adults; university, polytechnic and college students; teaching methods; training needs; in-service training; vocational training; retraining; distance learning.

**INF - INFORMATION, MEDIA**

Information services; the media industry; library services.

**ECO - ECONOMIC ASPECTS**

Economic sciences; economic analysis and theory; economic aspects of RTD.

**REG - REGIONAL DEVELOPMENT**

RTD activities related to regional development and the restructuring of economic sectors.

**RTD HORIZONTAL ACTIVITIES****POL - POLICIES**

Formulation, evaluation or application of policies, policy strategies or plans of action for research and development in science and technology.

**LEG - LEGISLATION, REGULATIONS**

Formulation, evaluation or application of laws and regulations, administrative measures, codes of conduct, decisions, directives or agreements for research and development in science and technology.

**FOR - FORECASTING**

Identification of future developments in RTD and long-term strategic options; input to RTD policies; forecasting methodologies.

**EVA - EVALUATION**

Evaluation of Community RTD programmes; evaluation methodologies.

**ITT - INNOVATION, TECHNOLOGY TRANSFER**

Development of mechanisms to promote innovation and technology transfer; utilization of the results of research, property rights and patents.

**COO - COORDINATION, COOPERATION**

Promotion of joint actions, the exchange of information, mobility, sharing of research resources, intercomparison exercises.

**SCI - SCIENTIFIC RESEARCH**

General scientific and industrial research, or research not included elsewhere.

## **Annex B: Abbreviations**

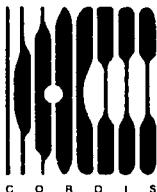
CEC .....	Commission of the European Communities
CORDIS .....	Community Research and Development Information Service
COST .....	European Cooperation in the field of Science and Technology
DG .....	Directorate-General
EC .....	European Community
ECSC .....	European Coal and Steel Community
JRC .....	Joint Research Centre
OOPEC .....	Office for Official Publications of the European Communities
RTD .....	Research and Technological Development

### *Languages*

DA .....	Danish
DE .....	German
EN .....	English
ES .....	Spanish
FR .....	French
GR .....	Greek
IT .....	Italian
NL .....	Dutch
PT .....	Portuguese

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