

SCIENCE AND ENGINEERING RESEARCH COUNCIL
RUTHERFORD APPLETON LABORATORY

INFORMATICS DEPARTMENT

SYSTEMS ENGINEERING DIVISION NOTE 39

CEC DGXII The Science Plan

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DGXII File

(see next page)

CEC DGXII The Science Plan

1. INTRODUCTION

Charles White who is an administrator with DGXII, gave a talk on Friday, 21 April 1989 at a seminar entitled 'The Mobility and Interchange of Researchers in Europe - Gaining Access to Funds' run by the IETT (Institute of European Trade and Technology). Charles White is an ex official of the Wandsworth Borough Council and is not a scientific type, but a pure administrator. He recently gave a talk to SERC which I managed to miss.

2. RATIONALE FOR CEC SCIENCE PLAN

The CEC feels that the European tax payers money should be spent on science if some or all of the following conditions apply.

1. Projects are so expensive that they cannot be tackled by one nation (eg JET). (NET)
2. The problem is trans-national (eg acid rain).
3. The problems affect all citizens of the European Community (eg ageing, cancer). Therefore by coordinating the research on a European scale there could be a reduction in the duplication of effort. Twenty Five per cent of all European Medical Research is coordinated by the CEC.
4. EEC wide standards eg 1992 internal market and collaborative R&D programmes eg ESPRIT.
5. Science Plan which aims to bring together scientists throughout the EEC. The EEC funds 1700 projects at a cost of 1 billion ECU per year making it the sixth biggest spender on research in Europe. Parenthetically White said that most European researchers still find it easier to work with people in the US rather than other parts of Europe!

3. FRAMEWORK PROGRAMME (1986)

The Science Plan is a subcomponent of the overall Framework Programme which was agreed in 1986 as a rolling programme. This is now the second Framework Programme which sets overall objectives, priorities and funding for the period 1987-1993 of some 5.5 billion ECU. It has eight components

1. Quality of life
2. Information Technology
3. Modernisation of Industry
4. Biology
5. Energy
6. Science and Technology for Development
7. Marine
8. Science and Technology Cooperation

Item 8, the Science and Technology Cooperation, which means improving European Science and Technological cooperation has been allocated 5% of the Framework Budget, under some scheme which translated into English is called 'researchers Europe'. This has the following components

1. The Science Programme
 - a. Brain
 - b. Superconductivity Initiative
2. Major Installations (eg building new facilities like ISIS)
3. SPES which is something to with increasing the amount of work in economic sciences
4. Science prizes (proposed prizes cash or staff or chairs to stop people going abroad to the USA down the Brain Drain)
5. European Assembly
6. Monitor

4. THE SCIENCE PLAN

The Science Plan which is some smart ass acronym to stimulate interaction between countries and scientific disciplines and promote industrial and academic cooperation runs from 1988 to 1992 and has a budget of 167 million ECUs. It has the following components

1. Individual mobility
 - a. Bursaries - these are usually for PhD study and require individual application. They supply travel and living costs, and the selections are made by the Science and Technology programmes.
 - b. Research Grants
 - these enable individuals to work in different laboratories and the receiving laboratory applies travel, salary and summary current costs can be provided. This route is also used for industry and academic exchanges.

2. Team Formation

a. Twinning

- this takes 50% of the Science Programme Budget. Twinning can exist between more than two institutions. Twinning pays for travel, accommodation and some marginal costs with an average size of 200 kilo ECUs, an average length of 27 months but some run up to 5 years. They normally have an average of 3 partners but a maximum of 7 has been approved and they can be of any subject.

b. Operations

- this is targeted research taking 40% of the budget. Operation projects must have a deliverable result. If the deliverable is not delivered then no money is paid. The range of projects is a half to 3.5 million ECUs and uniquely they can be "full" contracts ie can actually pay 100% of the entire project.

The CEC is standardising on contracts for all programmes so that they are all the same between programmes such as ESPRIT and BRITE. This means that 50% funding will be the norm. This means 50% of all costs if the contractor has a recognised accounting system or will be a 100% marginal costs for organisations like universities which do not have recognised accounting system, ie recognised by the Commission's Contract Division. Overheads on twinning contracts are limited to 20% of the total costs. Operations contracts may have "normal practice" overheads which may be up to 200%!

CODEST - the CODEST Committee reports to the Science programme. They consists of 24 eminent scientists including Sir David Phillips who is the Chairman of ABRC in the UK. CODEST is the top level committee but it uses up to 4000 referees to actually adjudicate the programme. Its mission is to improve the quality of European Science by collaboration. All proposals are peer reviewed. They have no strategic remit to improve the weaker nations ie everything is done scientific merit. The average success rate is one in seven by value and one in six by number.

5. YOUNG SCIENTISTS CONTEST

The European Commission is thinking of running a European Community Young Scientist Contest to encourage school children to take up science. This is going to be organised by taking all of the various existing national young scientist winners to Brussels on 18/19 October 1989 where there will be 6 prizes of 5,000 ECUs and other low prizes for other people.

6. EFTA

Non EEC Countries belonging to the European Free Trade Association (EFTA) will be participating fully in the Science Programme for example

the Fins are putting cash into the programme and therefore can get cash out.

7. CONCLUSION

The notes about the European Programme was just one of a series of talks and I append the agenda. I have some more details from those organisations if anybody is interested in either

1. The Royal Society
2. The SERC
3. The NATO Science Programme
4. The European Science Foundation
5. The British Council.

All the talks from the above organisations were pretty tedious being given by bureaucrats talking about sort of things equivalent to the SERC Yellow Book.

017 1. 2

**THE MOBILITY AND INTERCHANGE OF RESEARCHERS IN EUROPE -
GAINING ACCESS TO FUNDS**

FRIDAY 21 APRIL 1989

- 9-00 Registration and coffee
- 9-30 **Chairman's Introduction**
Professor Sir David Phillips, Chairman of the Advisory Board for
Research Councils (UK)
- 9-45 **Improving Scientific and Technical Co-operation in Europe - the
Science Plan, Major Facilities, Economics and Young Scientists**
Charles White, Administrator, DGXII, The Commission of the European
Communities, Brussels
- 10-35 Coffee
- 11-05 **European Collaboration in Electronic Structure Research - Life at
the Sharp End**
Peter Weightman, Deputy Director of the IRC in Surface Science,
University of Liverpool
- 11-35 **The Royal Society's Contribution to West European Exchanges**
Stephen Cox, Assistant Secretary, International Affairs, The Royal
Society
- 11-55 Discussion - additional panelist Wendy Light, European Liaison
Officer, UK Research Councils European Office
- 12-45 Lunch
- 2-15 **Finance for European Scientific Exchanges from the UK Science &
Engineering Research Council (SERC)**
John Merchant, Director of Council Policy and Administration, SERC
- 2-40 **The North Atlantic Treaty Organisation Science Programme**
Paul Rambaut, Deputy Assistant Secretary General for Scientific and
Environmental Affairs, Scientific Affairs Division, NATO
- 3-00 **The European Science Foundation's Scientific Networks Initiative**
John Smith, Staff Member Responsible for the Social Sciences, ESF
- 3-25 **Fostering Collaborative Links - Assistance from the British Council**
David Constable, Director and Richard Phillips, Senior Science
Officer, Science and Technology Department, The British Council
- 3-50 Discussion
- 4-40 Close and Tea

Announcement of opportunities under the plan to stimulate the international cooperation and interchange needed by European researchers

The Science Plan 1988 to 1992

(88/C 335/03)

I. Background

Following the success of the Stimulation Plan 1985 to 1988, the Council of Ministers gave its formal approval on 29 June 1988 to the plan to stimulate the international cooperation and interchange needed by European researchers (the Science Plan 1988 to 1992).

Under this activity, projects may be supported in all fields of the exact and natural sciences provided that they meet the criteria set out below. Thus applications may, on the one hand, be projects, put forward jointly by teams of researchers or engineers from Community countries, which require collaboration on a monodisciplinary or multidisciplinary basis in order to be brought to a successful conclusion. Alternatively, they may be for the costs involved in seconding researchers from one Community country to another, in bringing a scientist into a team in a country other than his own, or in developing the specialization of a young graduate scientist before joining a research laboratory. In both cases, applications may be from the public or private, university or industrial sectors.

In the fields in which support will be granted, multinational projects to benefit from the Community support measures will be chosen essentially on the basis of their quality, the extent to which they are multidisciplinary in content, their innovative aspects and their value in terms of breaking down barriers between different forms of research and development in all parts of the Community. Where scientific and technical quality is comparable, particular attention will be given to projects likely to reduce scientific and technical development disparities between Member States and thereby to contribute to economic and social cohesion within the European Community.

The choice of stimulation incentive measures and the teams concerned will be made by the Commission which, with the help of the Committee for the European Development of Science and Technology (CODEST), will make use of a peer review system.

II. Support methods to be used

Four forms of support will be used:

1. *Research bursaries*

Financial support granted to scientists to enable them to acquire additional training by participating in a research project in a laboratory in a Community

country other than their own for a period of at least one year and at most two years.

2. *Research grants*

These cover the cost to the laboratories concerned of the transfer or secondment of a research scientist from one Community country to another, either to allow a scientist to be taken on in a team in a country other than his own or to enable a science graduate to specialize before joining a university or industrial research laboratory.

Depending on the type of scientist and the purpose of the research allocation, it may take different forms.

3. *Twinning of laboratories in different countries*

This enables researchers who are working in isolation in an advanced field in several Community countries to bring their efforts together. Funding is granted to allow the researchers to meet, to carry out joint experiments, to exchange results, to add to their equipment or to strengthen their teams by temporarily taking on other scientists, preferably from a different country.

4. *Development of multidisciplinary, multinational operations*

This would, by virtue of the financial resources made available, enable the associated research teams to have enough resources (including equipment) and be able to bring together the best expertise available in different countries and disciplines, in order to achieve a predetermined objective or to undertake jointly a predetermined scientific task in the framework of an S/T cooperation 'network'.

III. The allocation of financial support

No guidelines as to maximum or minimum amounts are given. In most cases the level of support will be 100 % of the marginal costs (twinning) or full costs (operations).

CODEST meets four times per year, therefore no deadlines are imposed upon submissions which can be made at any time.

IV. Applications

Any person or body who wishes to learn more about, or submit a proposal under the Science Plan is invited to

request the appropriate Guide for Applicants which is available from:

Stimulation Action DG XII-H-1,
Commission of the European Communities,
200, rue de la Loi,
B-1049 Brussels.

COUNCIL DECISION

of 29 June 1988

on a programme plan to stimulate the international cooperation and interchange needed by European research scientists (1988 to 1992) (Science)

(88/419/EEC)

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 130Q (2) thereof,

Having regard to the proposal from the Commission ⁽¹⁾,

In cooperation with the European Parliament ⁽²⁾,

Having regard to the opinion of the Economic and Social Committee ⁽³⁾,

Whereas by Decision 85/197/EEC ⁽⁴⁾, the Council adopted a first plan to stimulate European scientific and technical cooperation and interchange;

Whereas Article 130K of the Treaty provides for the implementation of the framework programme to be carried out by means of specific programmes developed within each activity;

Whereas Article 130G (d) provides for the stimulation of the training and mobility of researchers in the Community;

Whereas the Community framework programme should play its part in contributing to strengthening the scientific and technological infrastructure and potential in all Member States of the Community;

Whereas Council Decision 87/516/Euratom/EEC of 28 September 1987 concerning the framework programme for Community activities in the field of research and technological development (1987 to 1991) ⁽⁵⁾ includes the stimulation, enhancement and use of human resources amongst the activities it provides for;

Whereas the stimulation of cooperation and exchange between European research laboratories in universities and in public and industrial institutions contributes to the achievement of a researchers' Europe while aiming to reduce the gap on the scientific and technical level between the various Member States of the European Community and being consistent with the pursuit of scientific and technical quality;

Whereas it is necessary to put existing scientific potential to good use at both the human level and that of institutions;

Whereas it is important to improve access to communication networks and scientific and technical information;

Whereas there exists a need to maintain close links with complementary activities undertaken by the European Science Foundation and the Council of Europe;

Whereas it is in the Community's interest to involve third countries and international organizations in certain Community programmes and particularly those programmes contributing to the overall European scientific infrastructure;

Whereas the Scientific and Technical Research Committee (Crest) has been consulted on the following measures,

HAS ADOPTED THIS DECISION:

Article 1

A programme plan to stimulate the international cooperation and interchange needed by European research scientists, hereinafter referred to as the 'Stimulation plan' is hereby adopted for a five-year period commencing on 1 January 1988.

Article 2

The summary of the stimulation plan and its objectives together with the operational arrangements for implementing the plan are set out in the Annex.

⁽¹⁾ OJ No C 14, 19. 1. 1988, p. 5.

⁽²⁾ OJ No C 68, 14. 3. 1988, p. 52 and OJ No C 187, 18. 7. 1988.

⁽³⁾ OJ No C 35, 5. 2. 1988, p. 5.

⁽⁴⁾ OJ No L 83, 25. 3. 1985, p. 13.

⁽⁵⁾ OJ No L 302, 24. 10. 1987, p. 1.

Article 3

The funds estimated as necessary for the execution of the stimulation plan amount to 167 million ECU, including expenditure on a staff of 18.

The Community financial support awarded to stimulation activities shall constitute 100 % of the cost of these scientific and technical cooperation and interchange actions.

Article 4

1. The Commission shall undertake the implementation of the stimulation plan by means of research bursaries, research grants, grants for high-level courses, contracts encouraging the twinning of laboratories and operations contracts including equipping and accompanying measures where appropriate. It shall be assisted by the Committee for the European Development of Science and Technology (Codest), set up pursuant to Decision 82/835/EEC⁽¹⁾, and by consultants.

2. The contracts drawn up by the Commission shall show the rights and obligations of each party, particularly the methods of disseminating, protecting and exploiting the research results and of making any reimbursement that may be necessary of the funding given.

Article 5

1. The Commission is authorized to negotiate in accordance with Article 130N of the EEC Treaty, agreements with international organizations, with those countries participating in European cooperation in the field of scientific and technological research (COST) and with those European countries having concluded framework agreements in scientific and technological cooperation with the Community with a view to associating them wholly or partly with the programme.

2. These agreements, which are founded on the criterion of mutual advantage, shall be concluded by the Council, deciding by qualified majority, in cooperation with the European Parliament.

Article 6

The Commission shall address a report to the Council and to the European Parliament after 30 months on the basis of an evaluation of the results so far achieved. This report shall be accompanied by suggestions for changes which may be necessary in the light of these results.

After the completion of the plan, the Commission shall send to Member States and the European Parliament a report on the performance and results of the plan.

The abovementioned reports will be carried out in relation to the precise objectives set out in Annex II to this Decision and in accordance with Article 2(2) of the framework programme set out in Decision 87/516/Euratom/EEC.

Article 7

This Decision shall apply with effect from 1 January 1988.

Article 8

This Decision is addressed to the Member States.

Done at Luxembourg, 29 June 1988.

For the Council

The President

H. RIESENHUBER

ANNEX

Objectives and summary of the stimulation plan

1. The stimulation plan consists of a range of activities selected on the basis of their scientific and technical quality, which have as their aim the establishment of a network of scientific and technical cooperation and interchange at European level which will gradually be extended. The overall objective is to improve the efficacy of scientific and technological research in all the Member States and to contribute thereby to the reduction of scientific and technical development disparities between the different Member States of the European Community. It covers all fields of science and technology (the exact and natural sciences).

Whilst the stimulation plan therefore aims to improve the overall scientific and technical quality of research and development in all Member States of the Community, its specific objectives are to:

- promote training through research and, by means of cooperation, the better use of high level researchers in the Community,
- improve the mobility of research scientists of the Member States of the Community,
- develop and support intra-European scientific and technical cooperation on high-quality projects,
- promote the setting-up of intra-European cooperation and interchange networks with a view to reinforcing the overall scientific and technical competitiveness of the Community and thereby strengthening its economic and social cohesion.

2. The objectives set out above will be achieved by means of support measures for research scientists, teams of research and development organizations to ensure the harmonious scientific and technical development of the Community. These will take the following forms:

- *Research bursaries*

Financial support granted to scientists to enable them to acquire additional training by participating in a research project in a laboratory in a Community country other than their own for a period of at least one year and at most two years.

- *Research grants*

These cover the cost to the laboratories concerned of the transfer or secondment of a research scientist from one Community country to another, either to allow a scientist to be taken on in a team in a country other than his own or to enable a science graduate to specialize before joining a university or industrial research laboratory.

Depending on the type of scientist and the purpose of the research allocation, it may take different forms:

- funding to enable a research scientist to make short stays (from 15 days to two months) in a foreign country within the Community to carry out specific experiments in a particular scientific or technical facility not available in his own country,
- funding to cover the costs associated with mobility (travel, subsistence, insurance, removal, etc.), the research work and possibly the salary of a scientist seconded to or incorporated in a research team in a country (in the Community) other than his own, for a period of at least six months and at most three years,
- funding to cover the costs associated with the mobility and research work of a scientist taken on in industry, who goes to follow a lengthy training course (from one to three years) in a public sector laboratory in a foreign country (within the Community),
- subsidies for high-level training courses: financial support granted to a body offering a specialized high-level course held within a Member State so that it can accept scientists from different Community Member States to give them additional training or enable them to retrain for other functions.

— *Turning of laboratories in different countries*

This enables researchers who are working in isolation in an advanced field in several Community countries to bring their efforts together, without coming into one laboratory, and thus encouraging the formation of a research team exceeding the necessary 'critical size'. Funding is granted to allow the researchers to meet, to carry out joint experiments, to exchange results, to add to their equipment or to strengthen their teams by temporarily taking on other scientists, preferably from a different country.

— *Development of multidisciplinary, multinational operations*

This would, by virtue of the financial resources made available, enable the associated research teams to have enough resources (including equipment) and be able to bring together the best expertise available in different countries and disciplines, in order to achieve a predetermined objective or to undertake jointly a predetermined scientific task in the framework of an S/T cooperation 'network'.

In addition, the plan will be complemented by sectoral incentive measures: research bursaries, research grants and subsidies financed in the framework of each of the Community research and development programmes following the agreement of the appropriate Management and Coordination Committee (CGC).

3. Measures to stimulate interchange and cooperation apply to all fields relevant to the exact and natural sciences, such as:
 - mathematics,
 - physics,
 - chemistry,
 - life science,
 - earth sciences and ocean sciences,
 - scientific instrumentation,
 - engineering sciences.
4. In the fields in which support will be granted, multinational projects to benefit from the Community support measures will be chosen essentially on the basis of their quality, the extent to which they are multidisciplinary in content, their innovative aspects and their value in terms of breaking down barriers between different forms of research and development in all parts of the Community. Where scientific and technical quality is comparable, particular attention will be given to projects likely to reduce scientific and technical development disparities between Member States and thereby to contribute to economic and social cohesion within the European Community.
5. The choice of stimulation incentive measures and the teams concerned will be made by the Commission which, with the help of the Committee for the European Development of Science and Technology (Codest), will make use of a peer review system. The Commission will see to it that there is consistency between the stimulation activity and programmed Community R&D activities.
6. The Commission will at the same time undertake a series of consultations, surveys and seminars with the cooperation of Community scientific and technical circles in order to analyse and evaluate scientific and technical needs and opportunities, with the aim of providing more detail to the content of the stimulation plan.

The Commission will cooperate closely with the national authorities to ensure consistency between these activities and national policies on research stimulation.
7. In order to evaluate the scientific and/or technical quality of requests for support, as well as to analyse scientific and technical opportunities and needs or to assess projects which have been financed or the activity itself, the Commission may call upon expertise from outside its own staff.



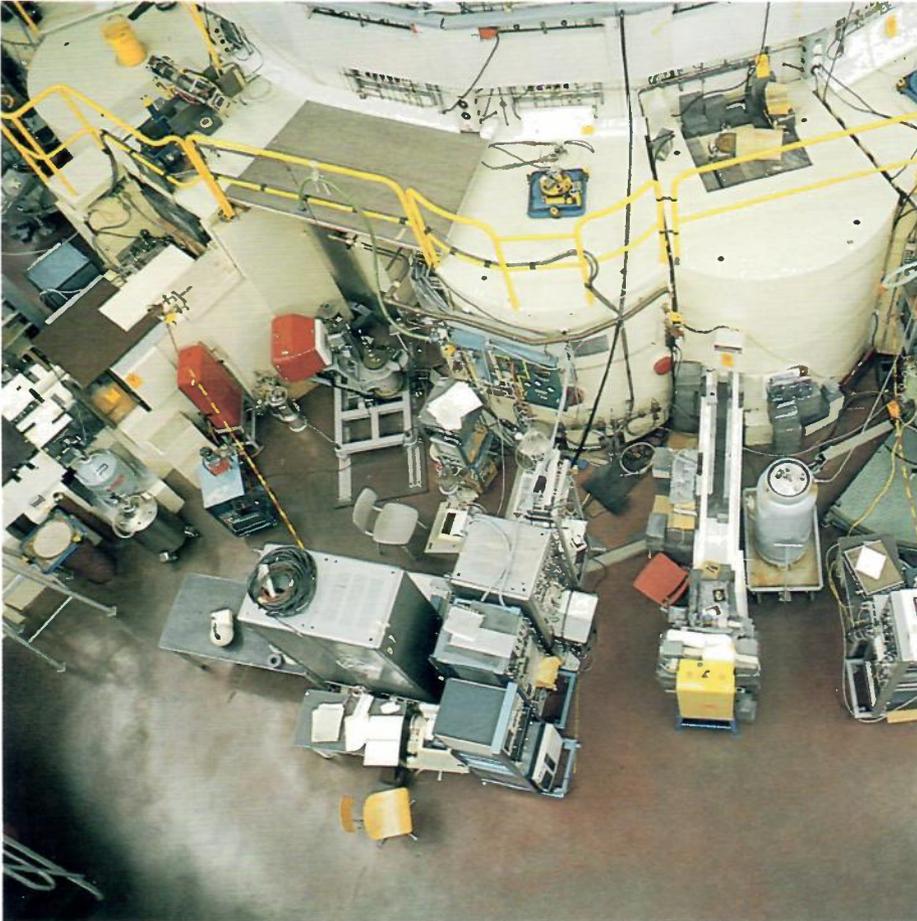
COMMISSION
OF THE EUROPEAN
COMMUNITIES

JOINT
RESEARCH
CENTRE

THE NINE JRC

JRC Scientific

Since its beginning in 1960, the JRC has developed a broad range of scientific instruments and facilities.
The capabilities of the JRC are distributed amongst nine



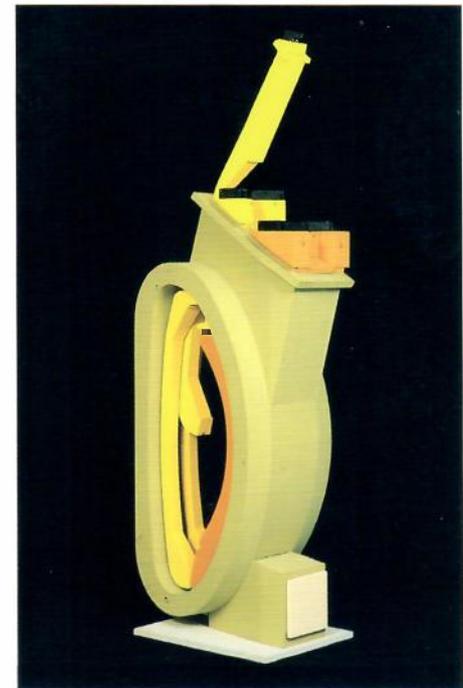
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THE JOINT RESEARCH CENTRE
At Your Service

Customers of the Joint Research Centre will benefit from the international character of the JRC, its vast array of contacts throughout the world, its tradition of cooperative research, and its inherent impartiality.

THE JRC IS AVAILABLE FOR:

- direct bilateral contracts to single clients in industry, government and the nonprofit sector.
- support of research groups by research, analysis, information activities, etc.
- multiclient collaborative joint research actions.

Potential customers from all aspects of science and technology are invited, without obligation, to discuss their research needs with our experienced personnel.

Enquiries for further information are welcome and should be addressed to the

Commission of the European Communities
Directorate-General of the Joint Research Centre
200, Rue de la Loi
B - 1049 Brussels
Phone: (02) 235 85 27
Telex: 21 877 COMEU B
Telefax: 2350146

or directly to the JRC sites

Commission of the European Communities
Joint Research Centre

Geel

Steenweg op Retie
B - 2240 GEEL
Phone: (014) 571 211
Telex: 33 589 EURAT B
Telefax: 14584273

Ispira

I - 21020 ISPRA (VA)
Phone (0332) 78 91 11
Telex: 380042 or 380058 EUR I
Telefax: 332789001

Karlsruhe

Postfach 2340
D - 7500 KARLSRUHE
Phone: (07247) 841
Telex: 7825483 EU
Telefax: 72474045

Petten

P.O. Box 2
NL - 1755 ZG PETTEN
Phone: (02246) 5656
Telex: 57211 REACP
Telefax: 22461002

The Central Bureau for Nuclear Measurements is housed at Geel, 80 km from Brussels, in Belgium. Its activities are devoted to the promotion of European standards and to the determination of reference data and materials in the non-nuclear as well as nuclear sector.

MAJOR RESEARCH FACILITIES:

Linear Electron Accelerator (LINAC) for the study of neutron-nucleus interactions.

Van de Graaff Particle Accelerators for nuclear measurements and the assay of trace elements.

Advanced Analytical Laboratories for the characterization of reference materials being prepared and certified.

The Institute for Transuranium Elements is housed at Karlsruhe, in the Federal Republic of Germany. It performs detailed nuclear safety studies of interest to the nuclear industry and licensing authorities, including studies on fuel behaviour under irradiation, waste management, and safeguards analysis. It also investigates the chemical and physical properties of actinides and explores new ways of handling materials, such as the use of acoustic energy for managing aerosols.

MAJOR RESEARCH FACILITIES:

Nuclear Laboratories equipped with hot cells and glove boxes for the study of fuel behaviour and the physico-chemical properties of actinides.

The Institute for Advanced Materials is housed primarily in Petten, about 60 km north of Amsterdam in Holland. It also has another site in Ispira, about 60 km north of Milan in Italy. This Institute is set up to analyze the behaviour of materials under neutron irradiation, to study the effects of corrosive environments, temperature and complex stresses on materials and components, and to develop materials processing technology. The Institute for Advanced Materials will concentrate on the characterisation and testing of the behaviour of materials under complex environments (both non-nuclear and nuclear), the development of materials processing technologies and of new functional materials.

MAJOR RESEARCH FACILITIES:

High Flux Reactor for testing the effect of fast and thermal neutrons on materials.

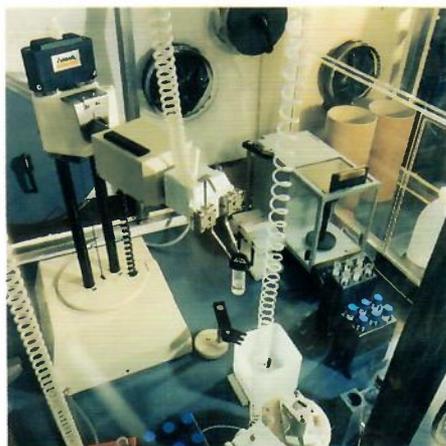
Environmental Testing Laboratory for tests on metals and ceramics at high temperature and under simulated complex industrial conditions.

Surface Engineering Laboratory. A new facility capable of surface engineering using ions, lasers and electrons. the laboratory is also equipped with advanced analysis equipment.

Cyclotron. A facility for radiation damage studies and isotope production which will be increasingly used in support of surface studies.



1. 3.7 MV Van de Graaff accelerator at the CBNM
2. Safeguards Analysis; detail showing a robot used for fuel sample preparation



3. View of some of the experimental equipment situated around the reactor pool, in use for irradiations in the HFR
4. Thermonuclear Fusion Materials: a micrographic section of a divertor plate made up of copper acting as a heat sink with a tungsten/Rhenium alloy armour produced by plasma spray coating. The image shows the effects of plasma disruption



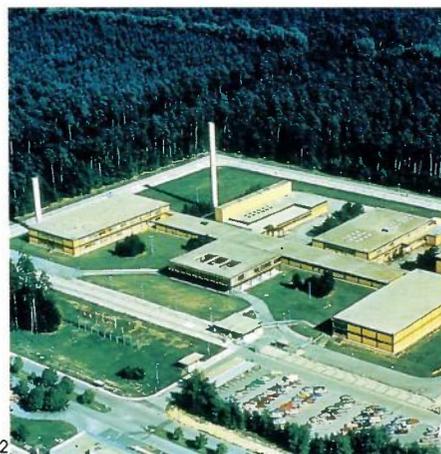
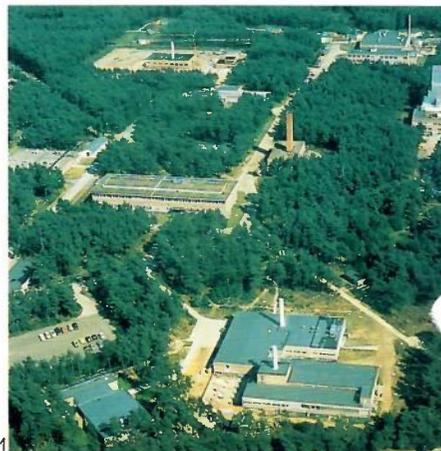
What is the Joint Research Centre?

The Joint Research Centre of the European Communities is a European scientific and technical research centre. Its four sites in Belgium, Germany, Italy and the Netherlands house nine different institutes, each with its own focus of expertise. The JRC performs scientific research and technology development for the Commission of the European Communities, national agencies, universities and corporate clients from Community Member States and other countries.

The scientific, regulatory and administrative bodies of the Community are the JRC's main users. They seek to increase the competitiveness of European industry within an open market, and for this they need pre-normative and pre-competitive research. The Community also carries out science that must be done on a European scale: provision of reference materials and measurement techniques, database services, environmental observations, research on safety, all of which depend on the transfer of scientific capabilities throughout Europe.

Increasingly, national governments and private corporations also utilize the considerable resources of the JRC to carry out contract research. With facilities and areas of expertise unique in Europe, the JRC serves a special role as a resource for organizations whose research needs exceed their own internal capacity, or who wish to benefit from the availability of specific JRC facilities and talent.

This brochure provides potential clients with an overview of the services, facilities and expertise at their disposal at Europe's Joint Research Centre.



Views of the four JRC sites:

1. Geel, in Belgium
2. Karlsruhe, in the Federal Republic of Germany
3. Ispra, in Italy
4. Petten, in Holland

The Institute for Safety Technology

at Ispra has programmes on non-nuclear and nuclear industrial risk, with particular emphasis on thermodynamics chemistry, radiation physics, and structural reliability. It operates all the major technology facilities at Ispra.

MAJOR RESEARCH FACILITIES:

LDTF - Large Dynamic Testing Facility for the study of materials and structures under static and dynamic stresses.

Reaction Wall - quasi-dynamic testing of large structures (to be built).

ETHEL - European Tritium Handling Experimental Laboratory (under construction).

LOBI and FARO - large experimental facilities for studying safety and process dynamics in nuclear plants.

Petra - batch installation for nuclear waste treatment.

Perla - laboratory for testing equipment and training staff for management and safeguards of fissile material.

The Centre for Information Technologies and Electronics

at Ispra has a high level of expertise in the fields of information processing and telecommunications. The Centre develops applications in many areas such as expert database systems, networking, advanced computing and mathematical modelling.

MAJOR RESEARCH FACILITIES:

Main Frame

Local Area Backbone Network

Advanced Informatics Laboratory

The Institute for Prospective Technological Studies

at Ispra monitors the state of science and technology and evaluates the potential effects of the technological choices facing Europe to enable industrialists and policy makers to assess the future impact of their decisions.

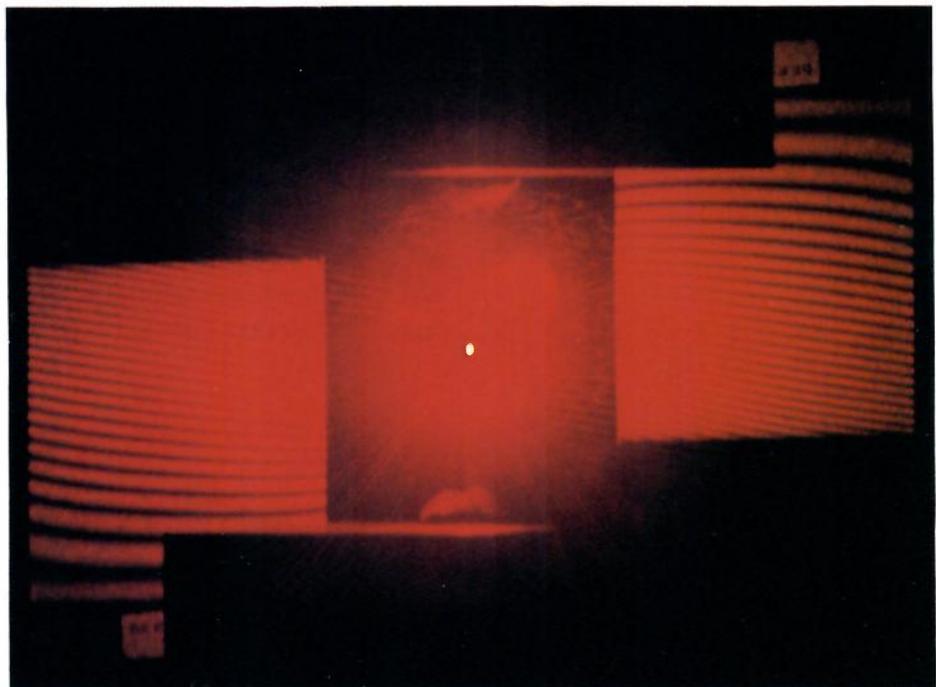
9. The Ispra Mark 13A Flue Gas Desulphurisation Pilot Plant near completion at the SARAS Refinery complex in Sardinia

10. Ultrasonic seals used as a nuclear safeguard technique



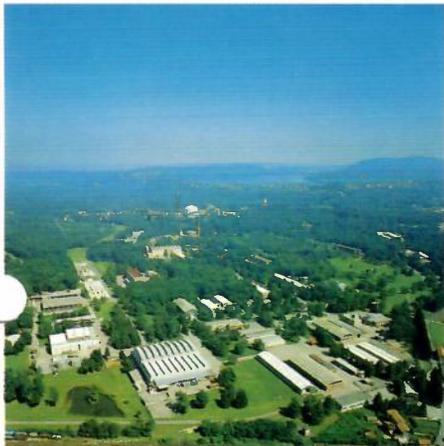
11. The Euro-Courses in session

12. Laser holographic interferometry for structural diagnostics





The European Connection



European nations are among the world's most advanced in terms of scientific research.

The Joint Research Centre of the European Community adds a further dimension to Europe's national research programmes:

Impartial

The JRC exists independent of local concerns, and closely allied with the aims of the Community as a whole. This makes it especially suited to regulatory and pre-normative research aimed at opening the internal European market. It also provides an independent source of scientific expertise capable of dealing impartially with situations in different countries.

3



International

The JRC has a natural vocation for research on cross-boundary problems, such as those related to the environment or to risk analysis. It also is in a position to perform research that must, by definition, be international: creating standardized reference materials and measurement techniques, studying norms for industrial safety, and performing the basic research needed for industrial harmonization in Europe.

4

Major Facilities

The JRC provides some research facilities that are too costly or specialized to duplicate in all the member states of the Community. It ensures that each member state has equal access to these facilities, and makes them available to other organizations as well.

Education Interface

The JRC trains researchers from every member state of the Community, and fosters collaborations between national programmes to promote the development of a more integrated scientific community throughout the whole of Europe.

The JRC devotes much of its activity to research needed by the European Communities. However, private companies, universities and agencies of national governments have interests that are on an international scale as well and the JRC is available to them as a European resource.