COUNCIL DECISION

of 25 January 1999

adopting a specific programme for research and training to be carried out by the Joint Research Centre by means of direct actions for the European Atomic Energy Community (1998 to 2002)

(1999/176/Euratom)

THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Atomic Energy Community, and in particular Article 7 thereof,

Having regard to the proposal from the Commission [1],

Having regard to the opinion of the European Parliament [2],

Having regard to the opinion of the Economic and Social Committee [3],

(1) Whereas, by Decision 1999/64/Euratom [4], the Council adopted a fifth framework programme for Community activities in the field of research and training for the European Atomic Energy Community for the period 1998 to 2002 (hereinafter referred to as the fifth framework programme) setting out the general outlines and scientific and technological objectives of the activities to be implemented by the Joint Research Centre (JRC) for the European Atomic Energy Community;

(2) Whereas Article 3 of the fifth framework programme stipulates that it shall be implemented through specific programmes drawn up in accordance with Article 7 of the Treaty, one programme of which concerning in particular the JRC;

(3) Whereas, in accordance with Article 4(2) of Council Decision 94/268/Euratom of 26 April 1994 concerning the fourth framework programme of the European Atomic Energy Community activities in the field of research and training (1994 to 1998) [5] and Article 7(3) of the Council Decisions on the specific programmes implementing the direct actions of the fourth framework programme, the Commission has arranged for an external assessment to be conducted which it has transmitted to the European Parliament, the Council and the Economic and Social Committee together with its conclusions and comments;

(4) Whereas Council Decision 1999/66/Euratom of 22 December 1998 concerning the rules for the participation of undertakings, research centres and universities in the implementation of the fifth framework programme of the European Atomic Energy Community (Euratom) (1998 to 2002) [6] allows the participation of the Joint Research Centre in indirect actions;

(5) Whereas, for the purpose of implementing this programme, it may be appropriate to engage in international cooperation activities, in particular on the basis of Chapter X of the Treaty, with third countries or international organisations;

(6) Whereas implementation of this programme will also comprise activities aimed at stimulating, disseminating and exploiting research results, in particular *vis-à-vis* small and medium-sized enterprises (SMEs), and activities to stimulate the mobility and training of researchers;

(7) Whereas research activities under the fifth framework programme should also be geared towards innovation in order to contribute, *inter alia*, to the objectives of the first action plan for innovation; whereas the JRC should actively pursue activities in innovation and technology transfer;

(8) Whereas the equal opportunities policy of the Community must be taken into account in the implementation of this programme;

---

(1) OJ C 236, 28.7.1998, p. 20.
(2) Opinion delivered on 15 December 1998 (not yet published in the Official Journal).
(3) OJ C 407, 28.12.1998, p. 123.
(4) OJ L 26, 1.2.1999, p. 34.
(5) OJ L 115, 6.5.1994, p. 31. Decision as last amended by Decision 96/253/Euratom (OJ L 86, 4.4.1996, p. 72).
(6) OJ L 26, 1.2.1999, p. 56.

(9) Whereas the Joint Research Centre (JRC) should implement the research and training activities carried out by means of direct action, in particular the tasks entrusted to the Commission by the Treaty; whereas the Commission should undertake the tasks incumbent on it in the area of nuclear fission, making use of the technical expertise of the JRC; whereas particular attention should be paid to the safety of the nuclear fuel cycle and its impact on man and the environment;

(10) Whereas the implementation of this programme should be monitored with a view to adapting it, where appropriate, to scientific and technological developments and needs; whereas in due course there should also be an assessment of progress with the programme by independent experts;

(11) Whereas, in the implementation of this programme, the Board of Governors of the JRC is consulted by the Commission in accordance with the relevant provisions of the Commission Decision concerning the organisation of the JRC; whereas the current provisions are set out in Commission Decision 96/282/Euratom [1];

(12) Whereas the Scientific and Technical Committee and the Board of Governors of the JRC have been consulted on the scientific and technological content of this specific programme,

HAS ADOPTED THIS DECISION:

Article 1

In accordance with Article 3(1) of the fifth framework programme, a specific programme related to direct actions of research and training activities to be carried out by the JRC (hereafter referred to as the specific programme) is hereby adopted for the period from 25 January 1999 to 31 December 2002.

Article 2

1. The amount deemed necessary for the execution of direct actions by the JRC under this programme is EUR 281 million.

An indicative breakdown of this amount is given in Annex I.

2. Of the amount in paragraph 1:

— EUR 71,8 million is for the period 1998 to 1999,

and

— EUR 209,2 million is for the period 2000 to 2002.

In the case referred to in Article 2(1)(c) of the fifth framework programme, the Council shall adapt the latter figure in accordance with Article 2(1)(c), second indent of the fifth framework programme. Pending a decision by the Council, this specific programme shall not be implemented beyond the provision of the first indent.

3. The budgetary authority shall, in compliance with the scientific and technological objectives and priorities laid down in this Decision, set the appropriations for each financial year taking into account the availability of resources within the multiannual financial perspective.

Article 3

1. The general outlines, the scientific and technological objectives and the priorities for the programme are set out in Annex II. They are consistent with the principles and the three categories of selection criteria indicated in Annex I to the fifth framework programme.

2. The detailed rules for financial participation by the Community in the specific programme are those referred to in Article 4 of the fifth framework programme.

Direct actions are defined in Annexes II and III to the fifth framework programme.

Specific rules for implementing the programme are set out in Annex III to this Decision.

Article 4

In the light of the criteria referred to in Article 3(1), and the scientific and technological objectives and priorities set out in Annex II, the Commission:

(a) shall monitor, with appropriate assistance from independent external experts, the implementation

[1] OJ L 107, 30.4.1996, p. 12.

of the specific programme and, where appropriate, submit proposals to the Council for adapting it, in accordance with Article 5(1) of the fifth framework programme;

(b) shall arrange for the external assessment provided for in Article 5(2) of the fifth framework programme to be conducted concerning the activities carried out in the fields covered by the specific programme.

Article 5

1. The Commission shall draw up a work programme specifying:

(a) in greater detail, the objectives and priorities of Annex II;

(b) the indicative timetable for the implementation of the specific programme.

2. This work programme shall be updated where appropriate and be made available by the Commission to all interested parties in a user-friendly form, including in electronic form.

Article 6

1. The Commission shall be responsible for the implementation of this programme, carried out by the JRC.

2. The Board of Governors of the JRC (hereinafter referred to as the Board of Governors) shall be consulted by the Commission in this task, in accordance with the relevant provisions of the Commission decision concerning the organisation of the JRC.

3. The Commission shall regularly inform the Board of Governors of the implementation of this specific programme.

Article 7

The Commission may request the JRC to execute, on the basis of the criterion of mutual benefit, projects with legal entities established in third countries when this contributes effectively to the execution of direct actions.

Article 8

In accordance with Article 5(4) of the fifth framework programme, the Commission shall regularly inform the Council and the European Parliament of the overall progress of the implementation of the programme.

Article 9

This Decision is addressed to the Member States.

Done at Brussels, 25 January 1999.

For the Council
The President
J. FISCHER

ANNEX I

INDICATIVE BREAKDOWN OF THE AMOUNT DEEMED NECESSARY

(million EUR)

Type of activity	Amount
Nuclear fission safety	122
Nuclear safeguards	138
Decommissioning and waste management	21
Total	281 (1) (2)

(1) Of which approximately 6 % may be allocated to exploratory research and up to 2 % for exploitation of own JRC results and technology transfer.
(2) This total includes the JRC's budget contribution necessary for its participation in shared-cost actions.

ANNEX II

GENERAL OUTLINES, SCIENTIFIC AND TECHNOLOGICAL OBJECTIVES AND PRIORITIES

A. THE MISSION OF THE JRC

The mission of the JRC is to provide customer-driven scientific and technical support for the conception, development, implementation and monitoring of Community policies. As a service of the European Commission, the JRC functions as a reference centre of science and technology for the Community. Close to the policy-making process, it serves the common interest of the Member States, while being independent of commercial or national interests.

Carrying out specific high-level research in close contact with industry and other bodies, the JRC supports the policy maker in addressing the concerns of the individual citizen, improving the interaction between man and the environment and promoting sustainable development.

In implementing its mission, the JRC will endeavour to coordinate research and training activities carried out in the Member States. Its work depends on intensive networking with public and private institutions in the Member States through, for example, research networks, joint projects or staff exchanges. This is important because the JRC's mission is complementary to the indirect action part of the fifth framework programme; while the indirect actions will continue to be the main mechanism for developing and testing new ideas, the JRC's role is to help apply them in the service of the policy maker.

B. OBJECTIVE: MAINTAINING A VIGILANT APPROACH

Nuclear energy continues to supply about a third of the Community's electricity and vigilance is still required to ensure a continuation of the Community's outstanding safety record, to maintain efforts to avoid proliferation and to efficiently manage the processing and long-term storage of waste. New challenges include a reactor park whose average age is increasing, an enlargement of the Community to include countries with a different safety culture and the coming into safeguards of material arising from the disarmament process.

The Commission has specific Treaty obligations in nuclear energy and it has always relied on the JRC to provide a technical support that can keep up with technological developments and face new challenges.

JRC's objective is therefore:

— to support the Commission in its Treaty obligations,

— to remain vigilant so as to maintain the Community's excellent record in safety and safeguards,

— to prepare to face the new challenges.

The two selection criteria for JRC activities are:

— relevance to Community policies. An understanding of the policy agenda allows JRC research to be timely and support the formulation of policy where it is most needed,

— subsidiarity. This has two aspects. Firstly the research must be in an area where Community involvement is appropriate and secondly it should be appropriate for this involvement to be through the JRC. Thus the JRC only operates where its unique pan-European identity provides an

added-value. In the nuclear area its action is justified by the cross-border aspects of nuclear safety and safeguards and by public concern about the issues.

C. THE JRC PROGRAMME

The JRC's specific programme for the fifth framework programme is shaped in a view to focus activities in areas where they have a high European added-value or which correspond to tasks entrusted to the Commission by the Euratom Treaty. These activities aim to optimise, in a European, or even international framework, the use of the JRC's special facilities and core competencies, in particular in areas where the JRC has acquired a level of excellence and is the unique holder of European knowledge.

Activities on fission safety will take advantage of the JRC's unique facilities and will focus on areas where the JRC is considered a reference centre for the Community such as actinides and areas of public concern such as severe accidents and the handling of waste. Work on ageing of reactor materials will increase to reflect the increasing importance of this issue for safety authorities and industry. The needs of the enlargement countries will be given some priority.

Work on control of nuclear materials will continue at the same level in order to meet the present and future needs of inspectors. This will include measurement, analysis and monitoring techniques and the training of inspectors. Some prospective studies will be carried out in order to foresee the safeguards implications of proposed changes in the fuel cycle and to determine whether remote sensing can be used for the detection of illicit activities.

Lastly, wastes issued from nuclear activities have to be properly managed and some obsolete facilities will be decommissioned.

This programme should not to be considered a blueprint for the work programme over the next four years but rather a general outline that reflects the current view of the policy agenda and priorities. Changes to the JRC programme are to be expected as science and technology advance and the policy agenda and the priorities of the customer change.

1. **NUCLEAR FISSION**

1.1. **Nuclear fission safety**

Even if nuclear fission is today considered a mature technology both the safety of nuclear installations and the management of the fuel cycle, notably the management of waste, require continued efforts as they are matters of public concern. Also public authorities maintain vigilance and push for continuous improvement and industry maintain a strong interest in new technologies and further improvements. The JRC supports these efforts which are at the core of its mission. It also offers unique facilities and traditional competence and scientific excellence while concentrating on activities where the added value by its support is unquestioned. They concern:

— the ageing of materials and components: determination of the residual lifespan of reactors and their main components, improvement and qualification of in-service inspection techniques through the evaluation of structural integrity and the development of methodologies and the qualification of non-destructive examination techniques,

— the fuel cycle safety: basic research on actinides is an area where the JRC is regarded as the centre of excellence, and in which it will produce detailed knowledge of the properties of these elements. This is essential to the whole fuel cycle safety and efficiency (basic properties of new fuel and waste, licensing and industrial operations such as reprocessing, processing, storage and disposal of waste and spent fuel), in particular it allows detailed studies of the phenomena occurring during irradiation of nuclear fuel, as well as the optimisation of those fuels to enhance both safety and efficiency (e.g. increase rate of irradiation, advanced fuels); studies on partitioning and transmutation will focus on lowering the radiotoxicity of waste by reducing, or even eliminating,

the presence of actinides and other long-lived radioactive elements in the fuel cycle, on the development of appropriate techniques for processing these materials,

— study of irradiated fuels with a view to direct disposal, in particular the characterisation of irradiated fuels, the examination of long-term behaviour under storage and final disposal conditions, and the determination of the risks associated with their radiotoxicity,

— the study of severe accidents, including the operation in a European network and with the support of international partners, of the FARO facility, the only one of its kind in the world, to allow the study of in-vessel and ex-vessel phenomena following core meltdown using real materials and representative configurations. The JRC will host in its large installations, in particular FARO, research teams from research organisms from Member States and reciprocally, it will contribute to European or international projects.

1.2. **Nuclear safeguards**

The scientific and technical support necessary to implement safeguards pursuant to Chapter VII of the Treaty and the obligations arising from the Non-proliferation Treaty and the implementation of the Commission's IAEA support programme is part of a dual process:

— to meet the technological challenges of the large fuel cycle facilities,

and

— to meet the new challenges arising following major international decisions, as well as the incorporation of new, more efficient technologies.

The JRC's impartiality is essential to support actions to combat illicit trafficking in nuclear materials and damage to the environment involving radioactive materials. The JRC's activities in this field are an integral part of a process both of European cooperation, as reflected in the European Safeguards Research and Development Association network, and of international cooperation with the United States, Russia, Japan, Brazil, Argentina and Canada.

JRC activities will focus on:

— development and improvement of measurement, monitoring and analytical techniques with emphasis on automation: destructive and non-destructive testing and analytical techniques (including the development of high-performance analysis to detect traces of radioactive materials in the environment), sealing and confinement techniques, quality control; these activities concern in particular large reprocessing plants and the plutonium cycle, including MOX fuel, and will include the monitoring of performance in real operating conditions of industrial equipment and the study of its conformity with international standards,

— development of dedicated information technologies (processing techniques for the analysis and detection of anomalies between declarations and verifications; three-dimensional laser techniques for the monitoring of very sensitive areas); assessment of remote sensing as a method of detecting illicit nuclear activities; establishment of the requisite infrastructure for implementation for control purpose,

— evaluation with regard to controls on fissile materials, of certain innovative concepts in the field of reactors and the fuel cycle; preparation of an approach that is adequate in terms of control,

— development of analytical techniques adapted to the fight against illicit trafficking and environmental damage involving radioactive materials (e.g. illicit dumping): research on analysis of specific properties of fissile materials such as isotopic composition, purity and granulation to

evaluate intended use, date of fabrication, etc. and development of a database to collate these characteristics; development of ultra-sensitive analysis to make it possible to identify the routing of materials up to their place of seizure,

— training of inspectors and operators, in particular in new technologies.

2. DECOMMISSIONING OF JRC INSTALLATIONS AND WASTE MANAGEMENT

The JRC will undertake and intensify work on decommissioning and dismantling of its installations used for nuclear activities which have not been in use for some time and are becoming obsolete. This will include the treatment and management including disposal of waste resulting from this work. This is of vital importance not only to protect the environment but also for the protection of workers and the eventual reduction of operational costs as it will reduce the need for monitoring and surveillance as nuclear activities are being reduced and concentrated.

— Establishment of a long term plan in order to ensure future and continuous implementation of these activities,

— Construction of an installation for the treatment of liquid wastes,

— Starting of decommissioning and dismantling operation of obsolete facilities and management of wastes arising from these activities.

ANNEX III

SPECIFIC RULES FOR IMPLEMENTING THE PROGRAMME

1. The Commission, after consulting the Board of Governors of the JRC, shall implement the direct action on the basis of the scientific objectives and contents described in Annex II. The activities relating to this action shall be performed in the relevant institutes of the Joint Research Centre (JRC).

2. In the implementation of its activities, the JRC will, whenever appropriate and feasible, participate in or organise networks of public and private laboratories in the Member States or European research consortia. Particular attention shall be paid to cooperation with industry, especially with small and medium-sized enterprises. Research bodies established in third countries may also cooperate on projects, in accordance with the relevant provisions of Article 7 and, where applicable, of agreements for scientific and technological cooperation between the Community and the third countries concerned. Particular attention will be paid to cooperation with research laboratories and institutes in the countries of central and eastern Europe and the former Soviet Union.

   The knowledge gained through implementation of the projects will be disseminated by the JRC itself (taking into account possible limitations due to confidentiality issues).

3. The accompanying measures shall include:

   — the organisation of visits to JRC institutes of grant holders, visiting scientists and seconded experts,

   — organisation of the secondment of JRC staff to national laboratories, industrial laboratories and universities,

   — systematic exchange of information, through, *inter alia*, the organisation of scientific seminars, workshops and colloquiums and scientific publications,

   — specialised training with the emphasis on multidisciplinarity,

   — the independent scientific and strategic evaluation of the performance of the projects and programmes.