

European Commission



**EURATOM RESEARCH AND TRAINING  
PROGRAMME ON NUCLEAR ENERGY  
(2002-2006)**

**WORK PROGRAMME  
2003**

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# 1. INTRODUCTION

## 1.1 General

Following the adoption of the specific programme (Euratom) for “Research and Training on Nuclear Energy<sup>1</sup>” and the rules for participation<sup>2</sup>, the Commission has adopted, with the assistance of the programme committee, this work programme which sets out in greater detail the objectives and scientific and technical priorities and the timetable for implementation of the specific programme, in particular for the first year of operation. Research and development activities in this programme comprise three thematic priorities, fusion energy research, management of radioactive waste and radiation protection, and other activities in the field of nuclear technologies and safety.

The manner in which the thematic priority – Fusion Energy Research – is implemented differs greatly from that for the other two thematic priorities – Management of Radioactive Waste and Radiation Protection – and also the Other Activities in the Field of Nuclear Technologies and Safety. The latter are implemented mainly through calls for proposals whereas the former is implemented by different mechanisms that have been developed especially for fusion energy research and reflect the particular nature of research in this area. Consequent upon these differences, not all of the material in this Section is relevant to fusion energy research (and vice versa), in particular those aspects concerned with instruments and evaluation criteria that will be used generally in the Sixth Framework Programme in those areas implemented through calls for proposals. The more general aspects (eg, international collaboration, ethical issues, socio-economic research, mobility of researchers, etc) are, however, equally applicable to all three thematic priorities and the other activities.

Activities within the thematic priority – **fusion energy research** - will mainly be carried out by the European laboratories associated with Euratom and by the European Fusion Development Agreement (EFDA) Close Support Units, in collaboration with university teams, and by industry.

In the areas of **the management of radioactive waste, radiation protection and other activities in the field of nuclear technologies and safety**, the new instruments (integrated projects and networks of excellence) are recognised as being an overall priority means to attain the objectives of critical mass, integration of the research capacities, management simplification and European added value

The new instruments will be used from the start in each of these areas and, where deemed appropriate, as a priority means, while maintaining the use of those used in previous programmes: namely, specific targeted research and training projects, co-ordination actions, specific support actions, trans-national access to large or unique infrastructures and various actions to promote and develop human resources. A smooth transition with previous programmes will be ensured.

More information on the provisions for implementing the new instruments is available on Cordis <http://www.cordis.lu/fp6/instruments.htm>.

In drawing up this work programme, the Commission has relied on advice from an advisory group and, for two of the thematic priorities – management of radioactive waste and radiation protection, on the results of a call for expressions of interest, which

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<sup>1</sup> OJ L 294, 29.10.2002, p.44

<sup>2</sup> OJ L 355, 30.12.2002, p 35

was launched in early 2002. More information on this, including the list of members of the advisory group and the results of the call for expressions of interest, is available on Cordis.

## 1.2 Scope of Work Programme

The scope of this work programme corresponds to that defined in the specific programme. The calls for proposals planned within this work programme are those foreseen for publication in 2002. Annex I gives an overview of these calls. Some topics in the specific programme have been left until a later stage and these will be addressed during the annual revisions of the work programme.

## 1.3 Cross Cutting Issues

There are several issues that are important to all parts of the work programme. These are addressed here and, as appropriate, elaborated in the various parts.

Proposers based in **states associated** to this programme may take part on the same footing and with the same rights and obligations as those based in Member States. In addition, this work programme underlines the importance of involving **associated candidate countries** in the Community's research policy and in the European Research Area. Specific support actions will also be implemented to stimulate, encourage and facilitate the participation of organisations from these countries in the activities of the programme. All of the candidate countries associated to this programme will participate in the thematic priority – fusion energy research - either through a Contract of Association with Euratom or specific cost-sharing actions with the aim of encouraging their closer integration into the programme.

**International co-operation** represents an important dimension of the Sixth Framework Programme and will be actively fostered in all areas of the programme where this would be beneficial. Co-operation at a European level in all three thematic priorities and other activities is already well established.

For those parts of the programme subject to calls for proposals, this co-operation will be intensified and deepened at a programme and project level in order to make better use of resources (both human resources and experimental facilities) and promote a common European view on key problems and approaches, in accordance with the needs of the European Research Area. Links will be established with national programmes and networking will be promoted with third countries, in particular, the USA, the Newly Independent States of the Former Soviet Union (NIS), Canada and Japan. Entities from all third countries, with a few exceptions (see below and Section 4), may participate in the programme in addition to the minimum number of participants from Member State or Associated countries. Third countries and international organisations can also be funded in those areas where their participation is necessary for carrying out the research activity.

International co-operation is an important feature of the fusion research and training programme. The participation of third countries in the integrated European programme is through an extensive network of co-operation, including general bilateral agreements and multilateral specific agreements and implementing programmes, the latter generally under the auspices of the International Energy Agency (IEA) or the International Atomic Energy Agency (IAEA). Reinforced co-operation is encouraged with countries having signed Science and Technology (S&T) co-operation agreements. Co-operation with relevant international organisations with intergovernmental agreements will be considered. For the multipartite collaboration on ITER, collaborative work will be

carried out in the frame of the ITER Transitional Arrangements, with the aims of maintaining the integrity of the international project, of adapting the design to the conditions of specific ITER sites under consideration, and of supporting the preparations for licensing. It will be implemented through the extensive network of co-operation with third countries, including general bilateral agreements and multilateral specific agreements and implementing programmes

The participation of Afghanistan, Iraq, Iran, Libya, Myanmar and North Korea in all areas of the nuclear energy programme is excluded; currently, there is no co-operation between the Community and these countries. The participation of Cuba, India, Israel, and Pakistan is also excluded as, currently, there is no co-operation between Euratom and these countries<sup>3</sup>.

Research activities carried out under this work programme must respect fundamental **ethical principles**. Further information on how ethical issues will be reviewed is given in the “Guidelines on Proposal Evaluation Procedures” (<http://www.cordis.lu/fp6/eval-guidelines>) and the issues to be addressed are set out in Annex IV to this work programme.

The **mobility of researchers** will be promoted, particularly with a view to the successful creation of the European Research Area.

This work programme attempts, where possible, to reinforce and increase the place and role of **women in science and research** both from the perspective of equal opportunities and gender relevance of the topics covered.

A particular effort will be carried out to take into consideration the ethical, social, legal and wider cultural aspects of the research including **socio-economic research**, and innovation, resulting from the possible deployment, use and effects of the newly developed technologies or processes and scenarios covered by the three thematic priorities and the other activities.

In the context of the regular report to be submitted to the Council, the Commission will report in detail on progress in implementing the specific programme and, in particular, progress towards achieving its objectives and meeting its priorities.

#### **1.4 Submitting a Proposal**

Proposals should be submitted under the terms of a call for proposals. In order to submit a proposal, a proposer should consult the following:

- This work programme
- The relevant call for proposals as it is published in the *Official Journal of the European Communities* and
- The relevant Guide for Proposers

These and a number of other useful texts, including the rules for participation, are available on Cordis. The latter should be consulted to ensure that the documents being used are the most recent; some will be revised periodically during the programme lifetime (eg, the Work Programme which will be revised on an annual basis).

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<sup>3</sup> This situation with respect to all excluded countries is subject to review, in line with the Community’s external policies. Please check CORDIS for any update.

## 1.5 Cross Cutting Proposals

Proposals that address more than one thematic area will be accommodated by the Commission, provided the areas addressed are covered by this work programme. The criterion of “relevance to the objectives of the specific programme” is a *sine qua non* for the further consideration of such proposals. They will be handled by the normal submission and evaluation procedures and treated by the thematic area which comprises the greatest proportion of the proposal (ie, its “centre of gravity”). Where the centre of gravity is not immediately obvious, the Commission will examine the proposal content and decide in which thematic area the proposal is best handled. If a proposal is transferred to a thematic area other than the one to which it was submitted, it will be handled in the framework of the new thematic area. However, if the new centre of gravity does not have an open call at the time of transfer, the proposal will be held over, with the agreement of the proposers, until a suitable call is open, but only if such a call is explicitly foreseen by the work programme. If successful, the proposal will be handled and funded by the thematic centre of gravity.

## 1.6 Evaluation Criteria and Related Issues

The “Guidelines on Proposal Evaluation Procedures” describe the basic procedures to be followed by all programmes under the Sixth Framework Programme of the European Community.

The set of criteria applicable to this work programme is given in Annex IV. Any complementary criteria are clearly stated in the relevant part of this work programme. Evaluation thresholds for each set of criteria are given in Annex IV and apply unless otherwise clearly stated. In addition, Annex IV outlines how the following will be addressed: gender issues, ethical and/or safety aspects, and the education dimension.

All proposals before they are selected for funding and which deal with ethical issues and any proposal for which ethical concerns have been identified during the scientific evaluation may be reviewed by a separate ethical review panel. The “Guidelines on Proposal Evaluation Procedures” give more details on the evaluation procedure as a whole as well as details of the ethical review procedure.

Furthermore, the work programmes, and consequently their calls for proposals, may specify and **restrict the participation of legal entities** in an indirect action according to their activity and type, according to the instrument deployed and to take into account specific objectives of the Framework Programme.

Calls for proposals may involve a **two-stage evaluation** procedure. When such a procedure is employed, this is stated clearly in the call for proposals. More information on this process is given in the “Guidelines for Proposal Evaluation Procedures”.

## 1.7 Specific Support Actions

Support activities are more limited in scope than the accompanying measures of the previous Framework Programmes. These projects aim to **contribute actively** to the implementation of activities of the work programme, the analysis and dissemination of results or the preparation of future activities, with a view to enabling the Community to achieve or define its RTD strategic objectives. Therefore, a significant emphasis has been placed on Support Actions:

- to promote and facilitate the dissemination, transfer, exploitation, assessment and/or broad take-up of past and present programme results (over and above the standard diffusion and exploitation activities of individual projects)
- to contribute to strategic objectives, notably regarding the European research area (eg, pilot initiatives on benchmarking, mapping, networking, etc)
- to prepare future community RTD activities, (eg, via prospective studies, exploratory measures, pilot actions, etc)

as opposed to awareness and information exchange activities, eg, annual Workshops and Conferences, that would take place anyway without Commission support. The latter activities will not be welcome if they do **not serve** the programme's strategic objectives, (in the sense of the European Research Area, improved co-ordination, public awareness, preparation of future Community initiatives, etc).

## 2. TECHNICAL CONTENT – FUSION ENERGY RESEARCH

The objective of fusion energy research is to make progress towards demonstrating the scientific and technological feasibility of fusion energy.

There are no Calls for Proposals for this Thematic Priority, except those relating to training fellowships (see Sections 2.4 and 5).

### 2.1 Programme in the Associations

For the Associations' programme, priority will be given to multilateral actions to focus activities on common projects such as those related to the exploitation or operation on JET and corresponding data interpretation and to the Next Step / ITER. The mobility and training of scientific and technical personnel, the dissemination of results and the diffusion of information to the public will be an integral part of the activities carried out. The activities to co-ordinate and support fusion energy research will concern studies in support of information exchange, conferences, seminars, workshops, scientific and technical meetings; recourse to external expertise capacities, including for the independent evaluation of activities; fellowships and training schemes, publications and other actions to promote technology transfer.

Depending on a decision on the realisation of ITER and its timing, the Associations' activities will be adjusted considering also the phasing out of the exploitation of facilities. A strong European co-ordination of the fusion activities will be ensured, which has been demonstrated to be essential over the years.

The extent of the accompanying domestic programme in fusion physics and technology which is required in the Associations and European industry to take full benefit from ITER, will depend (a) on the level of the European share in ITER and (b) on where would be sited. This could entail investments aiming at maintaining experimentation on fusion devices at world class level in Europe beyond the start of operation of ITER and a programme of technological development aiming at ITER and reactor technologies.

The programme in the Associations will include:

– ***R&D in fusion physics and plasma engineering***, focusing on the preparation of ITER operation and the study and evaluation of toroidal magnetic confinement formulas, with in particular the continuation of the construction of the Wendelstein 7-X "stellarator" and operation of the existing installations in the Euratom Associations.

**Research areas :** The scope of work includes both the further consolidation of the scientific basis for the Next Step operation, in particular by enhanced demonstrations of stability, confinement, power and particle exhaust, and control of plasmas under stationary conditions as well as in advanced regimes including internal transport barriers and exploration of the control of modes appearing in burning plasmas. These tasks shall be undertaken on a single and multi-machine basis with a substantial support of diagnostics, modelling and theoretical work. Heating and current drive as well as diagnostic technologies will be further developed in particular with a view to their application on ITER. A further objective is the evaluation of magnetic confinement formulas with the long-term aim of improving the economic competitiveness of a magnetic fusion reactor. These activities will be undertaken on existing fusion devices, exploiting the specialised capabilities of each machine to address the various topics.

– **Structured R&D activities in fusion technology**, in particular research on fusion materials and participation in the R&D activities for the decommissioning of JET, which is foreseen at the end of its operations.

**Research areas:** The overall aim is to meet the needs of the Next Step/ITER and to develop longer term technologies. The scope of work in the area of Next Step fusion technology within the EFDA frame will include further development and validation of key technologies such as superconducting magnets, vacuum vessel, blanket and shielding, heating and current drive systems, fuel cycle, diagnostics. Materials studies will be undertaken aimed at the definition of a fusion reactor reference material with reduced activation; the development of alternative advanced materials; and the definition of materials tests means, including possibly the start of the engineering design of a 14MeV neutron irradiation facility within an international co-operation .

– **Investigations of socio-economic aspects**, focusing on evaluation of economic costs and social acceptability of fusion energy, by way of complement to the further studies on safety and environmental aspects; co-ordination, in the context of a keep-in-touch activity, of the Member States' civil research activities on inertial confinement and possible alternative concepts; dissemination of results and the diffusion of information to the public; mobility and training.

**Research areas:** This work will build on the studies already completed in the Fifth Framework Programme, focusing in particular on economics and social acceptability and extending the studies on safety and environment

## **2.2 Exploitation of the JET facilities**

The JET facilities will continue to be exploited in the framework of the European Fusion Development Agreement (EFDA), in view of preparing the ITER operation by completing the exploitation of the performance enhancements currently under way. The use of the JET facilities should be phased out progressively according to the schedule of the ITER realisation and to the availability of the necessary financial resources.

**Research areas:** The performance enhancements to the JET facilities shall allow it to make a major contribution to the consolidation of the scientific basis for the Next Step, in parallel with the work on the devices in the laboratories of the Associations. The scope of the work on JET, which is the only fusion device capable of operating with Deuterium and Tritium, encompasses confinement, heating, fuelling, exhaust physics and plasma control as well as associated technologies.

### 2.3 Next Step / ITER

The Euratom framework programme (2002-2006) includes the continuation of Next Step activities with a view to participating in its construction in the second half of the period. However, since decisions on ITER do not depend only upon European Union Institutions but also on the European Union international partners, the programme of activities must be open regarding the eventual siting and framework of the Next Step/ITER and the precise content of the accompanying domestic programme. The studies performed in preparation of possible European site(s) will be completed.

The European Union participation in ITER would include contributions to the construction of equipment and installations, which are within the perimeter of the ITER site and necessary for its exploitation, as well as to the costs associated with the staffing and management of, and the support to be given to, the project during construction. The level and nature of this participation will depend on the outcome of the negotiations with the European Union international partners, and in turn on the location of the ITER site. If ITER was located in Europe, the European Union participation would also include contribution to the costs to be borne by Europe as a Host Party. Preparation for the participation of European industry in ITER will be undertaken.

### 2.4 Training Fellowships (FUSION-2003-2.4)

*Objectives:* to develop human resources and mobility, in particular offering advanced training to high calibre young scientists and assisting fellows from less-favoured regions to re-establish themselves in their country of nationality.

*Scope:*

Support will be restricted to the Intra-European Fellowships and European Re-integration Grants as defined in the Marie Curie Actions and to applicants from the Member States and those associated to the Euratom programme.

The Fellowships will be implemented following the modalities of the Marie Curie Actions<sup>4</sup> and through a continuously open call with specified dates when proposals will be batched and evaluated (see Section 5.2).

## 3. TECHNICAL CONTENT – MANAGEMENT OF RADIOACTIVE WASTE, RADIATION PROTECTION AND OTHER ACTIVITIES IN THE FIELD OF NUCLEAR TECHNOLOGIES AND SAFETY

The aims in the area of management of radioactive waste are to establish a sound technical basis for demonstrating the safety of disposing spent fuel and long-lived radioactive wastes in geological formations, to study the practicability on an industrial scale of partitioning and transmutation techniques and to explore the potential of concepts that would produce less waste in nuclear energy generation. Research in radiation protection will underpin European policy and regulations. It will focus on resolving uncertainties in the risks from exposures to radiation at low and protracted doses and, in other areas, on making better use of national efforts, principally through their more effective integration by networking and targeted research. In other activities in the field of nuclear technologies and safety, the thrust of research is to evaluate the potential of innovative concepts and develop improved and safer processes in the field of nuclear energy, to improve the safety of existing nuclear installations and to better integrate European education and training in nuclear energy and radiation protection.

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<sup>4</sup> The Marie Curie Actions are one component of research on human resources and mobility which is part of the Specific Programme on Structuring the ERA.

### 3.1 Structure and overall approach

The broad scope and objectives of each of the research topics to be addressed during the whole of Sixth Framework Programme are set out below. For each of the topics included in the first Calls, this information is further elaborated and the type of instrument or instruments to be used is specified. Similar information will be provided later, in revisions of the work programme, for those topics to be included in subsequent calls.

Two calls will be launched at the start of the programme, Call 2003 and Call Open. For Call 2003 there will be only one closing date in 2003 for all proposals to be submitted and a one-step evaluation system will be deployed. Call Open is a continuously open call but proposals will be evaluated in batches at given cut-off dates; in general, there will be two cut off dates each year. Further calls, Call 2004 and Call 2005, are foreseen with fixed deadlines in 2004 and 2005.

### 3.2 Management of Radioactive Waste

The absence of a broadly agreed approach to waste management and disposal is one of the main impediments to the continued and future use of nuclear energy. In particular, this applies to the management and disposal of long-lived waste components in geological repositories, which will be required no matter what treatment method is chosen for the spent fuel and high level waste. Research alone cannot ensure societal acceptance; however, it is needed in order to develop and test repository technologies, investigate suitable sites, promote basic scientific understanding relating to safety and safety assessment methods, and to develop decision processes that are perceived as fair and equitable by the stakeholders involved.

Research is also needed to explore the technical and economic potential of concepts for nuclear energy generation that make better use of fissile material and generate less waste.

#### 3.2.1 Geological disposal

**Objective:** to establish a sound technical basis for demonstrating the safety of disposing spent fuel and long-lived radioactive wastes in geological formations and underpin the development of a common European view on the main issues related to the management and disposal of waste.

**Research areas:** Improvement of fundamental knowledge, developing and testing technologies: research will focus on key physical, chemical and biological processes; interaction between the different natural and engineered barriers, their long-term stability and means of implementing disposal technologies in underground research laboratories.

New and improved tools: research will focus on models for performance and safety assessment, and methodologies to demonstrate long term safety, including sensitivity and uncertainty analyses, and development and evaluation of alternative measures of performance and of better governance processes that properly address public concerns on waste disposal.

### 3.2.1.1 Selected topics for the Call 2003

#### **(1) Sustainable integration of European research in the geological disposal of radioactive waste (Network of Excellence, NUWASTE-2003-3.2.1.1-1)**

*Objective:* to achieve sustainable integration of European research and demonstration activities in radioactive waste disposal

*Scope:*

- Develop a joint programme of activities around the participants' research and development programmes
- Develop a common European view on the main issues
- Demonstrate the technical feasibility of geological disposal
- Strengthen the scientific basis for performance and safety assessment
- Evaluate the practicability of constructing and operating repositories for long-lived radioactive waste and spent fuel in geological formations
- Build structured knowledge transfer and management methodologies and instruments
- Strengthen collaboration, in particular across disciplines and in performance and safety assessment
- Provide a forum for training

Broad participation from, in particular, waste management organisations, research organisations, academic institutions and, ideally, regulators will be required to achieve the objectives of the Network of Excellence.

#### **(2) Sustainable integration of European research on actinides (Network of Excellence, NUWASTE-2003-3.2.1.1-2)**

*Objective:* to achieve sustainable integration of European research on the physics and chemistry of actinides.

*Scope:*

- Behaviour of actinides in the spent fuel or high-level and long-lived waste, the engineered barrier system, the geological environment and the biosphere in order to better quantify the source term and radionuclide migration in assessments of the disposal system.
- Behaviour of actinides in the partitioning and transmutation processes
- Behaviour of actinides in new fuels and targets
- Training

Broad participation of research organisations and academic institutions with expertise in the physics and chemistry of actinides, as well as effective links with the user community, will be required to achieve the objectives of this Network of Excellence.

#### **(3) Understanding and physical and numerical modelling of the key processes in the near-field, and their coupling, for different host rocks and repository strategies (Integrated Project, NUWASTE-2003-3.2.1.1-3)**

*Objective:* to evaluate the safety function of the near-field system (waste package, engineered barrier system and excavation damaged zone) of repositories in different host-rocks.

*Scope:*

- Improve the conceptual basis and modelling for performance/safety assessment based on key data of critical processes and their coupling
- Integrated in-situ and laboratory experiments for relevant near-field processes from the waste package up to the disturbed zone of the host rock
- Experimental and modelling studies on the physico-chemical conditions of the near-field, in particular the impact on radionuclide mobility and main sources of uncertainty and sensitivity for performance assessment purposes
- Application of the results to performance assessment
- Training

A strong multidisciplinary team, including participation from research organisations, performance assessors, academic institutions and waste management organisations, will be required to achieve the objectives of this Integrated Project.

#### **(4) Development and testing of disposal concepts and technologies in Underground Research Laboratories (Integrated Project, NUWASTE-2003-3.2.1.1-4)**

*Objectives:* to demonstrate the technical feasibility of constructing and closing a repository safely and build confidence in the development process

*Scope:*

- Repository layout and construction through testing defined repository components in underground research laboratories with the view to improve their design for various host rock formations
- Impact of reversibility and retrievability on the disposal concept and its implementation
- Optimisation of the engineering approach and the related costs
- Consistent approaches for assuring safety and building confidence
- Development and testing techniques for the repository closure and monitoring
- Training

Broad inter-disciplinary participation from waste management organisations, research organisations, academic institutions, regulators, etc, with particular expertise in engineering studies and performance assessment will be required to achieve the objectives of the Integrated Project.

#### **(5) Improving the governance of geological waste disposal (Specific Targeted Research Project or Co-ordination Action, NUWASTE-2003-3.2.1.1-5)**

*Objectives:* to better understand what influences public acceptance and develop guidance for the improved governance of geological waste disposal

*Scope:*

- Critical analysis, based on case studies in Member States, on current and past decision-making processes on waste management and disposal
- Co-operation and dialogue with different social actors
- Develop guidance on better governance processes, taking account of national differences (eg, culture, history, legal and administrative regimes)

Broad participation from the human and natural sciences and the main stakeholders (eg, waste management organisations, regulators, local authorities, public interest groups, non-governmental organisations, etc) will be required to achieve the objectives.

### **3.2.1.2 Indicative topics for future calls**

Future calls will cover radionuclide migration processes, modelling of coupled thermal-hydraulic-mechanical-chemical processes, and tools for performance and safety assessment.

### **3.2.2 Partitioning and transmutation and other concepts to produce less waste in nuclear energy generation**

**Objective:** to determine practical ways of reducing the amount and/or hazard of the waste to be disposed of by partitioning and transmutation and to explore the potential of concepts for nuclear energy to produce less waste.

**Research areas:** Partitioning and transmutation: research will focus on fundamental assessments of the overall concept; demonstration at small scale of the most promising partitioning technologies; further development of technologies for transmutation; and evaluation of their industrial practicability.

Concepts to produce less waste: research will focus on exploring the potential for the more efficient use of fissile material in existing reactors and of other concepts to produce less waste in nuclear energy generation.

#### **3.2.2.1 Selected topics for the Call 2003**

##### **(1) Partitioning of actinides and fission products from high-level nuclear waste for their transmutation or conditioning in stable matrices (Integrated Project, NUWASTE-2003-3.2.2.1-1)**

**Objectives:** to develop hydro-metallurgical and pyrochemical processes for the partitioning (chemical separation) of radionuclides from the high-level radioactive waste and demonstration of most promising processes at a small scale.

**Scope:**

- Development of hydro-metallurgical processes for the partitioning of actinides (III) from the high-level waste from reprocessing of high burn-up uranium oxide and multi-recycled mixed oxide fuels.
- Basic studies of pyrochemical processes (in particular thermodynamic data acquisition for both chloride and fluoride media) and demonstration of full recovery (99.9%) of actinides from high-level waste.
- Basic studies and process development of hydro-metallurgical and pyrochemical methods for the chemical separation of actinides from fuels and targets used in transmutation devices.

## **(2) Impact of partitioning and transmutation (Specific Targeted Research Project or Co-ordination Action, NUWASTE-2003-3.2.2.1-2)**

*Objectives:* to assess the benefits and disadvantages of partitioning and transmutation on the fuel cycle as a whole and, in particular, for waste management and geological disposal

*Scope:*

- Systems studies to evaluate the health, environmental, social and economic benefits (or disadvantages) of partitioning and transmutation applied on an industrial scale to the fuel cycle and to establish performance criteria for the different steps
- All operations and waste streams in the fuel cycle that would be significantly affected by partitioning and transmutation to be addressed

A highly inter-disciplinary approach will be required with, ideally, the active participation of waste management organisations.

### **3.2.2.2 Indicative topics for future calls**

Future calls will cover transmutation and other concepts to produce less waste in nuclear energy generation.

## **3.3. Radiation Protection**

Radiation and radioactive materials are used extensively in medicine and industry and are by-products of the generation of nuclear energy. Safety in their use and/or management is predicated on a sound radiation protection policy and its effective implementation. Community research underpins European policy and has contributed to the high levels of protection achieved in practice. These standards must be maintained and, in some cases, improved and research has a key role in this process.

The main objective is to resolve uncertainties in the risk from exposures to radiation at low and protracted doses (ie, at levels typically encountered by the population and in workplaces). This remains a controversial science and policy issue and has important health and economic implications for the use of radiation in both medicine and industry.

Community research in other areas of radiation protection will focus on making better use of national efforts, principally through their more effective integration by networking and targeted research where this would either be complementary to, or provide synergy with, national programmes.

### **3.3.1 Quantification of risks associated with low and protracted exposures**

*Objective:* to better quantify and understand the risks associated with low and protracted exposures to ionising radiation.

*Research areas:* Research will focus on epidemiological studies of suitable exposed populations, and on cellular and molecular biology research on the interaction between radiation and the DNA, cells, organs and the body.

### 3.3.1.1 Selected topic for the Call 2003

#### (1) Cellular and molecular biology research on the effects of low and protracted doses (Integrated Project, RAD PROT-2003-3.3.1.1-1)

*Objective:* to unravel the mechanisms of, and the individual susceptibility to, health effects resulting from low and protracted exposures for the purposes of better quantifying the risks of radiation.

*Scope:*

- study of important mechanisms from initial damage to health effects manifested in the organism, including *inter alia*
  - biological consequences of damage to DNA and other cellular macro-molecules
  - role of DNA repair pathways and intra/extra-cellular communication on cellular processes and tissue functions
  - further identification of pathways for susceptibility to, and development of, radiation induced cancer
  - relevance of radiation induced cellular endpoints, such as genomic instability, bystander effects, chromosomal aberrations and mutations in the cancer process
- complemented by
  - development of cellular and/or molecular tests for predicting the individual risk of cancer and assessment of their social and ethical implications
  - identification of more susceptible individuals or groups in the population and their contribution to population averaged risk estimates
  - molecular epidemiological studies aimed at assessing the contribution of identified susceptibility genes to cancer
  - further development of mechanistic models describing the multi-stage process of carcinogenesis.

A fully integrated multi-disciplinary project involving, *inter alia*, radiobiology, genetics, molecular biology, biophysics and oncology will be required to achieve the objectives. How and when the research and its outcomes are expected to contribute to the overall goal (ie, better quantification of risks) must be clearly indicated and milestones provided against which progress can be measured. Interaction with end users and addressing ethical issues should be an integral part of the activities.

### 3.3.1.2 Indicative topics for future calls

Future calls will cover epidemiological studies and further molecular and cellular biology research.

### 3.3.2 Medical exposures and natural sources of radiation

*Objectives:* to enhance the safety and efficacy of medical uses of radiation and to better understand, assess and manage natural sources of radiation.

*Research areas:* Medical uses of radiation in diagnosis and therapy; naturally occurring radioactive materials (NORM).

### **3.3.2.1 Selected topics for the Call 2003**

#### **(1) Safety and efficacy of computed tomography (CT) (Specific Targeted Research Project, RAD PROT-2003-3.3.2.1-1)**

*Objective:* to justify and optimise the use of computed tomography for a wide range of applications

*Scope:*

- CT examinations giving rise to high individual doses to patients or medical personnel
- paediatric CT
- common clinical and screening applications of CT
- development of guidelines and quality criteria for CT examinations

A highly multi-disciplinary approach involving, *inter alia*, radiologists, clinicians, radiation protectionists and CT manufacturers, will be required to achieve the objectives.

#### **(2) Safety and efficacy of other imaging techniques (Co-ordination Action, RAD PROT-2003-3.3.2.1-2)**

*Objective:* to develop quality criteria and guidelines for new and emerging imaging techniques

*Scope:*

- networking of activities in Member and Associated States
- techniques (including nuclear medicine but excluding CT) associated with high individual doses or which are applied extensively to more sensitive groups (ie, children)

A co-ordination action of modest scale and ambition should be sufficient to achieve these objectives.

### **3.3.2.2 Indicative topics for future calls**

Future calls will cover further research on the medical uses of radiation, in particular in therapy, and networking to better integrate activities within Member and Associated States concerned with the assessment and management of exposures from naturally occurring radioactive materials (NORM).

### **3.3.3 Protection of the environment and radioecology**

*Objective:* to establish a conceptual and methodological basis for protection of the environment and to better assess and manage the impact of natural and artificial sources of radiation on man and the environment.

*Research areas:* Conceptual and methodological basis for protection of the environment; sustainable integration of European research on radioecology.

### 3.3.3.1 Selected topic for the Call 2003

#### (1) Protection of the environment from radiation (Specific Targeted Research Project, RAD PROT-2003-3.3.3.1-1)

*Objectives:* To establish a robust conceptual and methodological basis for underpinning sound policy and standards for protection of the environment from radiation.

##### *Scope*

- development of a conceptual framework for protection of the environment that is likely to gain broad acceptance, with due account being taken of scientific, social, cultural, ethical and economic considerations
- development of a methodological approach to enable the concept to be applied in practice within a regulatory framework
- further investigations into processes, mechanisms and effects which would, within the project duration, significantly enhance the quality or robustness of the methodology and/or the scope of its application.

Broad inter-disciplinary and fully integrated participation will be required from, *inter alia*, the social, economic, environmental, biological and physical sciences with significant input from end users (regulatory bodies and industry) to achieve the objectives.

### 3.3.3.2 Indicative topics for future calls

**Future calls will cover** networking to better integrate, in a sustainable manner, research within Member and Associated States on radioecology in order to maintain and enhance competence to respond effectively to current and future needs.

### 3.3.4 Risk and emergency management

*Objectives:* to develop better approaches for risk governance and more effective and coherent off-site emergency management in Europe, including the rehabilitation of contaminated areas.

*Research areas:* Better approaches for risk assessment and management that can find broad technical and social acceptance and can contribute to the more effective and rational use of resources for nuclear safety; research, development and demonstration activities that can make demonstrable improvements in the effectiveness and coherence of emergency management in Europe.

### 3.3.4.1 Selected topic for the Call 2003

#### (1) Off-site emergency management (Integrated Project, RAD PROT-2003-3.3.4.1-1)

*Objectives:* To improve the efficacy and coherence of off-site emergency management in Europe including the rehabilitation of contaminated areas

##### *Scope:*

Activities should focus on the application, rather than the generation, of new knowledge.

- demonstration of the practicability of “state of the art” decision support systems in operational emergency centres, in particular of new and emerging tools or features

- methodological, organisational and technological developments able to make demonstrable improvements, achieve greater coherence or contribute to maintaining competence in off-site emergency management
- establishment of a platform or framework for the consolidation and exchange of methods, tools, arrangements, etc, developed at national and European levels.
- further improvement of strategies and methods for the longer term management and rehabilitation of accidentally contaminated areas, taking account of inputs from a broad range of “stakeholders”

A fully integrated multi-disciplinary project that secures the active participation of end users, both policy makers and operational emergency centres, and the research community will be required to achieve the objectives. Demonstration activities should represent a major part of the activities.

#### **3.3.4.2 Indicative topics for future calls**

Future calls will cover development of improved approaches to the governance of nuclear risks together with guidance on their application.

#### **3.3.5 Protection of the workplace**

*Objective:* to improve the monitoring and management of occupational exposure in industries involving exposure to radiation.

*Research areas:* sustainable integration of European research concerned with protection of the workplace.

##### **3.3.5.1 Selected topics for Call 2003**

This area is not included in the Call 2003.

##### **3.3.5.2 Indicative topics for future calls**

Future calls will cover networking to better integrate research, in a sustainable manner, within Member and Associated States in the field of protection of the workplace in order to maintain and enhance competence to respond effectively to current and future needs.

### **3.4 Other Activities in the Field of Nuclear Technologies and Safety**

The objectives are to support European Union policies in the fields of health, energy and the environment, to ensure that European capability is maintained at a high level in relevant fields not covered by the thematic priorities and to contribute towards the creation of the European Research Area.

#### **3.4.1 Innovative Concepts**

*Objective:* to evaluate the potential of innovative concepts and develop improved and safer processes in the field of nuclear energy.

*Research areas:* Evaluation of the potential of innovative concepts and development of improved and safer processes for the generation and exploitation of nuclear energy that have been identified as offering longer term benefits in terms of safety, environmental impact, resource utilisation, proliferation resistance or diversity of application.

### **3.4.1.1 Selected topics for the Call 2003**

This topic is not included in the Call 2003.

### **3.4.1.2 Indicative topics for future calls**

Future calls will cover high temperature reactors, other innovative concepts and other applications, such as hydrogen production using process heat from nuclear fission systems.

### **3.4.2 Education and Training**

**Objective:** to better integrate European education and training in nuclear safety and radiation protection to combat the decline in both student numbers and teaching establishments, thus providing the necessary competence and expertise for the continued safe use of nuclear energy and other uses of radiation in industry and medicine.

**Education and training areas:** Development of more harmonised approaches for education in the nuclear sciences and engineering in Europe and its implementation, including better integration of national resources and capabilities.

This will be complemented by support for fellowships, special training courses, training networks, grants for young research workers from the NIS and CEE countries, and trans-national access to infrastructure. As regards infrastructures, trans-national access to installations will be promoted. A further step will be to initiate a common analysis of the future European Union needs in human resources and competencies and experimental tools in the mid-term.

Fellowships, special training courses, grants for young research workers from the NIS and CEE countries and trans-national access to infrastructure are described in Section 3.5.

Education and training will also be important elements of individual projects implemented in the two thematic priorities and other activities, in particular those implemented through integrated projects or networks of excellence; in this context the participation of young scientists is to be encouraged.

#### **3.4.2.1 Selected topics for the Call 2003**

##### **(1) Education and training in nuclear engineering and safety (Specific Targeted Training Project or Co-ordination Action, NUCTECH-2003-3.4.2.1-1)**

**Objective:** to achieve the sustainable integration of education and training in nuclear engineering and safety in Europe

**Scope:**

- Development of approaches capable of finding broad application in Europe and pilot actions to demonstrate their practicability
- Develop a common basis for a European Master's degree in nuclear engineering and safety that is likely to find broad acceptance and use

Participation of the main organisations in Europe involved with education and training in nuclear engineering and safety will be required to achieve the objectives.

**(2) Education and training needs for radiation protection and radioactive waste management (Specific Targeted Training Projects or Co-ordination Actions, NUCTECH-2003-3.4.2.1-2)**

*Objectives:* to determine the needs for co-ordinated education and training activities on a European scale and how these could be met.

*Scope:*

- Scoping studies of the needs for co-ordinated education and training in the areas of radiation protection and waste management
- Mechanisms and approaches for responding to these needs.

**(3) Infrastructures for nuclear fission and radiation protection research (Specific Targeted Research Projects or Co-ordination Actions, NUCTECH-2003-3.4.2.1-3)**

*Objectives:* to identify the needs for research infrastructures and how these may be fulfilled in a European context.

*Scope:*

- Scoping studies of the needs for infrastructures and how these may be fulfilled in both the short and long terms

**3.4.2.2 Indicative topics for future calls**

Future calls will cover education and training activities for radiation protection and radioactive waste management.

**3.4.3 Safety of Existing Nuclear Installations**

*Objective:* to improve safety in existing installations in Member States and candidate countries during their remaining operational lifetimes and subsequent decommissioning, making use of the considerable knowledge and experience gained internationally from experimental and theoretical research.

**Research areas:** Plant management including effects of ageing and fuel performance; severe accident management, including the development of advanced numerical simulation codes; integration of European capabilities and knowledge from practical decommissioning; developing scientific bases for safety and best practice, at a European level.

**3.4.3.1 Selected topics for the Call 2003**

**(1) Prediction of irradiation damage effects on reactor components (Integrated Project, NUCTECH-2003-3.4.3.1-1)**

*Objectives:* to develop an advanced numerical tool for prediction of irradiation damage.

*Scope:*

- Strategy for the development and validation of a numerical simulation tool valid at different scales
- Develop a numerical tool, benchmark with experimental data and demonstrate its practicability for use on reactors
- Acquisition of additional experimental data on mechanical properties to enable full exploitation of the advanced tool
- Establish a users club to define the development strategy and exploit the product
- Knowledge management

The fully integrated participation of the research community and users (industry and regulators) will be required to meet the objectives of this Integrated Project.

**(2) Sustainable integration of European research on severe accident phenomenology and management (Integrated Project and/or Network of Excellence, NUCTECH-2003-3.4.3.1-2)**

*Objectives:* to achieve sustainable integration of European research on severe accident management and contribute to reducing outstanding issues.

*Scope:*

- Develop a joint programme of activities for research on severe accident management
- Knowledge management, dissemination and training using advanced communication links
- Optimise the use of experimental facilities
- Approaches for assessing plant specific vulnerability
- Development and validation of an advanced fully integrated numerical tool
- Further experimental studies for code validation and resolving remaining uncertainties and safety issues
- Better prevention and mitigation measures

The active participation of the research community and users (industry and regulators) within an Integrated Project and/or a Network of Excellence will be required to meet the objectives.

**(3) Material test reactors for advancing the knowledge of materials, fuel and production of radioisotopes for nuclear medicine (Specific Targeted Research Project or Co-ordination Action, NUCTECH-2003-3.4.3.1-3)**

*Objective:* to contribute to the joint development of a new European material test reactor.

*Scope:*

- Modalities for the joint planning, development, financing, construction and use of a new facility
- Feasibility and design studies for a new material test reactor able to broadly satisfy future European needs

The active participation of the major potential users will be required to achieve the objectives.

**(4) Decommissioning of nuclear installations (Co-ordination Action, NUCTECH-2003-3.4.3.1-4)**

*Objectives:* to exchange and consolidate European knowledge and experience on decommissioning and facilitate access to it

*Scope:*

- Further development of existing databases on tools and costs and of the web site
- Analyses of issues of common interest (eg, identify best practice)
- Training and exchange of experts

Broad participation from the research community and users (industry and regulators) will be required to meet the objectives.

### 3.4.3.2 Indicative topics for future calls

Future calls will cover research on numerical codes and software platforms for coupling of thermal hydraulics, core physics and fuel mechanics, networking on plant life management, materials ageing and organisational issues in NPPs in the European Union and Associated States, feasibility studies of high burn-up and MOX fuel, benchmarking of approaches to risk assessment and knowledge management.

## 3.5 Specific support actions, trans-national access to large<sup>5</sup> infrastructures and actions to promote and develop human resources and mobility

### 3.5.1 Specific support actions (NUCHORIZ-2003-3.5.1)

*Objectives:* to contribute actively to the implementation of activities in the work programme, dissemination of results and preparation of future activities.

*Scope:*

- Promote and facilitate the dissemination, transfer, exploitation, assessment and broad take up of past and present programme results (over and above the standard diffusion and exploitation activities of individual projects)
- Contribute to strategic objectives, notably regarding the European Research Area (eg, pilot initiatives on benchmarking, mapping, networking, etc)
- Prepare future Community RTD activities (eg, via prospective studies, exploratory measures, pilot actions, etc)

**as opposed** to awareness and information exchanges, eg, annual Workshops and Conferences that would take place anyway without Commission support. The latter activities will not be welcome if they do not **serve** the programme's strategic objectives (in the sense of the European Research Area, improved co-ordination, public awareness, preparation of Community initiatives, etc).

### 3.5.2 Trans-national access to large infrastructures (NUCHORIZ-2003-3.5.2)

*Objectives:* to promote access for researchers to infrastructures that provide essential and unique services to the European research community.

*Scope:*

Community support will be provided for the costs of access for researchers working in Member States and Associated States, other than the state where the infrastructure is established.

Projects will be implemented following the modalities for supporting research infrastructures<sup>6</sup> in the Specific Programme – Structuring the ERA.

### 3.5.3 Actions to promote and develop human resources and mobility

These actions include training fellowships, special training courses, and grants for co-operating with third countries.

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<sup>5</sup> “Large infrastructures” is shorthand for all infrastructures that are unique and/or important in terms of their use within Europe – this broader interpretation should be made in all references to large infrastructures

<sup>6</sup> Research Infrastructures is one component of the Specific Programme on Structuring the ERA.

### 3.5.3.1 Training fellowships (NUCHORIZ-2003-3.5.3.1)

*Objectives:* to develop human resources and mobility, in particular offering advanced training to high calibre young scientists and assisting fellows to re-establish themselves in their country of nationality.

*Scope:*

Support will be restricted to the Intra-European Fellowships and European Re-integration Grants as defined in the Marie Curie Actions and to applicants from the Member States and those associated to the Euratom programme.

These fellowships and grants will be implemented following the modalities of the Marie Curie Actions<sup>7</sup>.

### 3.5.3.2 Special training courses (NUCHORIZ-2003-3.5.3.2)

*Objectives:* to maintain a high level of expertise and competence within the Community on nuclear matters.

*Scope*

- Training courses aimed at the rapid dissemination of the results of national and Community research programmes
- Training courses aimed at maintaining competence

Priority will be given to the former.

### 3.5.3.3 Grants for co-operating with third countries (NUCHORIZ-2003-3.5.3.3)

*Objectives:* to provide support for periods of up to six months to young research workers from the countries of Central and Eastern Europe (CEE) and the new independent States (NIS) of the former Soviet Union to work in laboratories in the Community.

*Scope*

- Limited to Community laboratories actively carrying out research funded by this or previous Euratom programmes at the time the exchange occurs

### 3.5.4 Selected topics for the Call Open

All of the items in Section 3.5 are subject to a continuously open call with specified dates when proposals will be batched and evaluated. Support will be **strictly limited** to activities falling within the technical scope of the programme set out in Section 3.

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<sup>7</sup> The Marie Curie Actions are one component of research on human resources and mobility which is part of the Specific Programme on Structuring the ERA.

#### 4. IMPLEMENTATION<sup>8</sup>

A global time-table of Calls for the entire duration of the Sixth Framework Programme (2002-2006) is given in Annex I. The nature of the Call, deadlines, type of instruments and indicative budget are indicated.

The first call, Call 2003 with the fixed deadline of 6 May 2003, will be launched on 17 December 2002 with an indicative budget of about 67 M€ Most research topics will be implemented using the new instruments, in particular integrated projects and networks of excellence. The instrument or instruments best suited to achieving the objectives of each topic is indicated in Section 3. For those topics where the new instruments are foreseen as the implementing mechanism, it is envisaged that, in general, one project will be funded for each research topic. There will be competition between topics and between topic areas and this may result in not all topics being funded. Depending upon the quality of proposals received, between 70 to 90% of the budget could be assigned to projects implemented via these new instruments. The remainder would be assigned to projects implemented via specific targeted research projects and co-ordination actions.

Call Open, launched at the same time as Call 2003, will use the following instruments: specific support actions, training fellowships, special training courses, grants for co-operating with third countries, trans-national access to large infrastructures. This Call will be continuously open throughout the duration of the programme but will have periodic cut-off dates; in general, there will be two cut-off dates per year. The indicative budget for projects submitted and evaluated in 2003 is about 2M€

The other two calls, Calls 2004 and 2005 with fixed deadlines in 2004 and 2005, will be launched later at an interval of about one year. Call 2004 and Call 2005 will use a mix of the following instruments: integrated projects, networks of excellence, specific targeted research projects, co-ordination actions and integrated infrastructure initiatives.

A roadmap for the Call for Proposals, outlining the topics to be covered for the three calls with fixed deadlines in 2003, 2004 and 2005, is given in Annex II together with the indicative budget for the first call. The research topics expected to be included in each Call are indicated. Further details of the objectives and scope of research topics to be included in the first Call, together with the type of instrument to be used, are given in Section 3.

The criteria against which proposals will be evaluated are given in Annex IV together with the weights and thresholds that will be applied.

Participation within the programme is, in general open, subject to the conditions set out in the Rules for Participation in the Euratom Programme. The participation of Afghanistan, Iraq, Iran, Libya, Myanmar and North Korea in all areas of the nuclear energy programme is excluded; currently, there is no co-operation between the Community and these countries. The participation of Cuba, India, Israel, and Pakistan is also excluded as, currently, there is no co-operation between Euratom and these countries<sup>9</sup>. A summary of the conditions under which third countries can participate can be found in the Guide for Proposers.

Fellowships are restricted to applicants from the EU and countries associated to the Euratom programme. Further detail can be found in the Guide for Proposers.

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<sup>8</sup> The implementation of the thematic priority, fusion energy research, **does not involve calls for proposals** with the exception of training fellowships. The calls for proposals and modalities for their implementation described in this Section are equally applicable to fusion energy research.

<sup>9</sup> This situation with respect to all excluded countries is subject to review, in line with the Community's external policies. Please check on CORDIS for any update.

## 5. CALL INFORMATION

### 5.1 Fiche for Call 2003 - Fixed Deadline

1. **Specific Programme:** EURATOM Research and Training Programme on Nuclear Energy
2. **Activities** Thematic Priorities, Management of Radioactive Waste and Radiation Protection, and Other Activities in the Field of Nuclear Technologies and Safety
3. **Call Title:** Thematic Call in the area of “Euratom Research and Training programme on nuclear energy”
4. **Call identifier:** Euratom Call 2003 – Fixed deadline
5. **Date of publication<sup>10</sup>:** 17 December 2002
6. **Closure date(s)<sup>11</sup>:** 6 May 2003 at 17.00 (Brussels local time)
7. **Total indicative budget:** 67 million €
8. **Areas called and instruments**

Area	Topic	Instrument <sup>12</sup>
<b>3.2.1 Geological disposal</b>	NUWASTE-2003-3.2.1.1-1	NOE
	NUWASTE-2003-3.2.1.1-2	NOE
	NUWASTE-2003-3.2.1.1-3	IP
	NUWASTE-2003-3.2.1.1-4	IP
	NUWASTE-2003-3.2.1.1-5	STREP or CA
<b>3.2.2 Partitioning and transmutation and other concepts to produce less waste in nuclear energy generation</b>	NUWASTE-2003-3.2.2.1-1	IP
	NUWASTE-2003-3.2.2.1-2	STREP or CA
<b>3.3.1 Quantification of risks associated with low and protracted exposures</b>	RAD PROT-2003-3.3.1.1-1	IP
<b>3.3.2 Medical exposures and natural sources of radiation</b>	RAD PROT-2003-3.3.2.1-1	STREP
	RAD PROT-2003-3.3.2.1-2	CA

<sup>10</sup> The Director General responsible for the publication of this call may publish it up to one month prior or after its envisaged publication date

<sup>11</sup> When the envisaged date of publication is either advanced or delayed (see previous footnote), closure date(s) will be adjusted accordingly

<sup>12</sup> IP = Integrated project; NOE = Network of excellence; STREP = Specific targeted research project; CA = Coordination action; SSA = Specific support action

<b>3.3.3 Protection of the environment and radioecology</b>	RAD PROT-2003-3.3.3.1-1	STREP
<b>3.3.4 Risk and emergency management</b>	RAD PROT-2003-3.3.4.1-1	IP
<b>3.4.2 Education and Training</b>	NUCTECH-2003-3.4.2.1-1	STREP or CA
	NUCTECH-2003-3.4.2.1-2	STREP or CA
	NUCTECH-2003-3.4.2.1-3	STREP or CA
<b>3.4.3 Safety of Existing Installations</b>	NUCTECH-2003-3.4.3.1-1	IP
	NUCTECH-2003-3.4.3.1-2	IP or NOE
	NUCTECH-2003-3.4.3.1-3	STREP or CA
	NUCTECH-2003-3.4.3.1-4	CA

#### 9. Minimum number of participants<sup>13</sup>:

<b>Instrument</b>	<b>Minimum number of participants</b>
<b>IP and NOE</b>	<b>3 independent legal entities from 3 different MS or AS, with at least 2 MS or ACC.</b>
<b>STREP and CA</b>	<b>2 independent legal entities from 2 different MS or AS, with at least 1 MS or ACC.</b>

#### 10. Restriction on participation:

Participation of some third countries excluded (see Section 4 of the work programme).

#### 11. Consortium agreement:

- Participants in IP and NOE resulting from this call are required to conclude a consortium agreement.
- Participants in STREP and CA resulting from this call are encouraged, but not required, to conclude a consortium agreement.

#### 12. Evaluation procedure:

- The evaluation shall follow a single stage procedure.
- Proposals will not be evaluated anonymously.

#### 13. Evaluation criteria:

The criteria (including their individual weights and thresholds and the overall threshold) are set out in Annex IV of the work programme for each type of instrument.

#### 14. Indicative evaluation and contractual timetable:

- Evaluation results: estimated to be available within some 3 months after the closure date.

<sup>13</sup> MS = Member States of the EU; AS (incl. ACC) = Associated States; ACC = Associated candidate countries.

Any legal entity established in a Member State or Associated State and which is made up of the requested number of participant may be the sole participant in an indirect action.

- Conclusion of first contracts: it is estimated that the first contracts related to this call will come into force before the end of 2003.

## 5.2 Fiche for Call Open – Continuously Open Call

- 1. Specific Programme:** EURATOM Research and Training Programme on Nuclear Energy
- 2. Activities** Specific support actions, trans-national access to large infrastructures and actions to promote and develop human mobility
- 3. Call Title:** Specific support actions, trans-national access to large infrastructures and actions to promote and develop human mobility in the “Euratom Research and Training Programme on Nuclear Energy”
- 4. Call identifier:** Euratom Call Open
- 5. Date of publication<sup>14</sup>:** 17 December 2002
- 6. Closure date(s)<sup>15</sup>:** 06.05.2003, 14.10.2003, 13.04.2004, 12.10.2004, 12.04.2005, 11.10.2005 and 11.04.2006, at 17.00 (Brussels local time)

**7. Total indicative budget:** 2 million € for proposals evaluated in 2003.

Total indicative budget for 2004, 2005 and 2006 will be given in periodic updates of the work programme.

## 8. Areas called and instruments

Area	Topic	Instrument
<b>3.5.1</b> Specific support actions	NUCHORIZ-2003-3.5.1	Specific support actions
<b>3.5.2</b> Trans-national access to large infrastructures	NUCHORIZ-2003-3.5.2	Trans-national access to large infrastructures
<b>3.5.3</b> Actions to promote and develop human resources and mobility	FUSION-2003-2.4 and NUCHORIZ-2003-3.5.3.1	Training fellowships (Actions to promote and develop human mobility)
	NUCHORIZ-2003-3.5.3.2	Special training courses (Actions to promote and develop human mobility)
	NUCHORIZ-2003-3.5.3.3	Grants for co-operating with third countries (Actions to promote and develop human mobility)

<sup>14</sup> The Director General responsible for the publication of this call may publish it up to one month prior or after its envisaged publication date

<sup>15</sup> When the envisaged date of publication is advanced or delayed (see previous footnote), closure date(s) will be adjusted accordingly

## 9. Minimum number of participants<sup>16</sup>

<b>Instrument</b>	<b>Minimum number of participants</b>
Training fellowships (Actions to promote and develop human mobility)	<b>1 legal entity from 1 MS or AS</b>
Specific support actions, Trans-national access to large infrastructures, Special training courses and Grants for co-operating with third countries (Actions to promote and develop human mobility).	<b>1 legal entity</b>

## 10. Restriction on participation:

- Participation of some third countries excluded (see Section 4 of the work programme).
- Grants for co-operating with third countries limited to countries in Central and Eastern Europe and the Newly Independent States of the Former Soviet Union.
- Training fellowships limited to applicants from Member States and those associated to the Euratom programme.

## 11. Consortium agreement:

Participants in RTDT actions resulting from this call are not required to conclude a consortium agreement

## 12. Evaluation procedure:

- The evaluation shall follow a single stage procedure.
- Proposals will not be evaluated anonymously.

## 13. Evaluation criteria:

The criteria (including their individual weights and thresholds and the overall threshold) are set out in Annex IV of the work programme for each type of instrument.

## 14. Indicative evaluation and contractual timetable:

- Evaluation results: estimated to be available within some 2 months after the closure date.
- Conclusion of contracts: it is estimated that the first contracts related to this call will come into force before the end of 2003.

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<sup>16</sup> MS = Member States of the EU; AS (incl. ACC) = Associated States; ACC = Associated candidate countries.

Any legal entity established in a Member State or Associated State and which is made up of the requested number of participant may be the sole participant in an indirect action.

## ANNEXES

### ANNEX I: GLOBAL TIME-TABLE OF CALLS (2002-2006)

<b>Call Publication</b>	<b>Submission Deadlines</b>	<b>Call ID</b>	<b>Type of Deadline</b>	<b>Type of Instruments</b>	<b>Budget Years</b>	<b>Indicative Budgets M€</b>
17 December 2002	6 May 2003	2003	Fixed deadline	IPs, NoEs, Infrastructures, STREPS and Co-ordination Actions	2003 & 2004	~67 M€
17 December 2002	6 May and 14 October, 2003 13 April and 12 October, 2004 12 April and 11 October, 2005 11 April, 2006	Open	Open call, with 7 cut-off dates	Specific Support Actions, Fellowships, Grants, Training Courses and Trans-national Access to Large Infrastructures	2003 to 2006	~2 M€in 2003
Autumn 2003	Spring 2004	2004	Fixed deadline	IPs, NoEs, Infrastructures, STREPS and Co-ordination Actions	2004 & 2005	
Autumn 2004	Spring 2005	2005	Fixed deadline	IPs, NoEs, Infrastructures, STREPS and Co-ordination Actions	2005 & 2006	

## ANNEX II: ROAD MAP FOR CALL FOR PROPOSALS AND BUDGET

Topic <sup>17,18</sup>	Deadline: 6 May 2003		Deadline: Spring 2004	Deadline: Spring 2005
	Topic covered	Indicative Budget (Million €)	Topic Covered	Topic Covered
<b>Management of Radioactive Waste</b>		~30		
Geological disposal	<b>X</b>		<b>X</b>	<b>X</b>
Partitioning and transmutation and other concepts to produce less waste	<b>X</b>		<b>X</b>	<b>X</b>
<b>Radiation Protection</b>		~20		
Quantification of risks associated with low and protracted exposure to radiation	<b>X</b>		<b>X</b>	<b>X</b>
Medical exposure and natural sources of radiation	<b>X</b>		<b>X</b>	<b>X</b>
Protection of environment and radioecology	<b>X</b>		<b>X</b>	
Risk and emergency management	<b>X</b>		<b>X</b>	
Protection of the workplace			<b>X</b>	
<b>Other Activities in nuclear technology and safety</b>		~17		
Innovative concepts			<b>X</b>	<b>X</b>
Education and training	<b>X</b>			<b>X</b>
Safety of existing installations	<b>X</b>			<b>X</b>
<b>Total (M€)</b>		~67		

<sup>17</sup> There are no calls for proposals for the thematic priority, fusion energy research, apart from Fellowships which are included in the Open Call (see Annex I)

<sup>18</sup> In addition, there are a number of horizontal activities (ie, specific support actions, training fellowships, special training courses, grants for co-operating with third countries and trans-national access to large infrastructures) which are included in a call that will remain open throughout the duration of the programme (see Annex I).

## **ANNEX III: INSTRUMENTS TO BE USED**

### **A. FUSION ENERGY RESEARCH**

In the field of fusion energy research, the particular nature of the activities in this area necessitates the implementation of specific arrangements. The projects undertaken will be carried out on the basis of procedures set out in:

- Contracts of association
- The European Fusion Development Agreement (EFDA)
- Any other multi-lateral agreement concluded between the Community and associated organisations and/or legal entities which may be set up, after the competent consultative committee has given its opinion
- Other contracts of limited duration, in particular with bodies in the Member States or the States associated with the Euratom Framework Programme
- International agreements covering projects carried out in the framework of co-operation with third countries, such as ITER.

The only area that is implemented using the instruments developed more generally for the 6<sup>th</sup> Framework Programme (see Section B below) is training fellowships.

### **B. MANAGEMENT OF RADIOACTIVE WASTE, RADIATION PROTECTION AND OTHER ACTIVITIES IN THE FIELDS OF NUCLEAR TECHNOLOGIES AND SAFETY**

#### **INTRODUCTION**

An instrument implementing an action must be commensurate with the scope and objectives of the research activity concerned, and will take into account, as appropriate, the views of the research community. Accordingly, the size of an action may vary in relation to the themes and subjects it covers, depending on the critical mass of expertise necessary to obtain European added value and achieve the expected results. In some cases, this may be achieved by the clustering of actions dedicated to different aspects of one and the same objective.

All actions should involve, as appropriate, universities or institutions of higher education of a similar level, research organisations and industry, including SMEs. They could entail activities relating to dissemination, transfer and exploitation of knowledge as well as analysis and evaluation of the economic and social impact of the technologies concerned and the factors involved in their successful implementation.

Research and training activities will be carried out from the start of the programme primarily by means of Integrated Projects and Networks of Excellence. Specific Targeted Research Projects, Co-ordination Actions, Actions to promote and develop human resources and mobility, Integrated initiatives relating to infrastructure and Specific support actions may also be used wherever it is deemed appropriate for the efficient execution of the research activity concerned.

## **1. NETWORKS OF EXCELLENCE**

The purpose of Networks of Excellence is to strengthen and develop Community scientific and technological excellence by means of the integration, at European level, of research and training capacities currently existing or emerging at both national and regional level. Each Network will also aim at advancing knowledge in a particular area by assembling a critical mass of expertise. They will foster co-operation between capacities of excellence in universities, research centres, enterprises, including SMEs, and science and technology organisations. The activities concerned will be generally targeted towards long-term, multidisciplinary objectives, rather than predefined results in terms of products, processes or services.

A Network of Excellence will be implemented by a joint programme of activities involving some or, where appropriate, all of the research and training capacities and activities of the participants in the relevant area to attain a critical mass of expertise and European added value. A joint programme of activities could aim at the creation of a self-standing virtual centre of excellence that may result in developing the necessary means for achieving a durable integration of the research and training capacities. A joint programme of activities will necessarily include those aimed at integration, as well as activities related to the spreading of excellence and dissemination of results outside the network.

Subject to conditions to be specified in the specific programmes and in the rules for participation the Networks of Excellence will have a high level of management autonomy including, where appropriate, the possibility to adapt the composition of the Network and the content of the joint programme of activities.

## **2. INTEGRATED PROJECTS**

Integrated Projects are designed to give increased impetus to the Community's competitiveness or to address major societal needs by mobilising a critical mass of research and technological development resources and competences. Each Integrated Project should be assigned clearly defined scientific and technological objectives and should be directed at obtaining specific results applicable in terms of, for instance, products, processes or services. Under these objectives they may include more long-term or "risky" research.

Integrated Projects should comprise a coherent set of component actions which may vary in size and structure according to the tasks to be carried out, each dealing with different aspects of the research needed to achieve common overall objectives, and forming a coherent whole and implemented in close coordination.

The activities carried out as part of an Integrated Project should include research and, as appropriate, technological development and/or demonstration activities, activities for the management and use of knowledge in order to promote innovation, and any other type of activity directly related to the objectives of the Integrated Project.

Subject to conditions to be specified in the specific programmes and in the rules for participation, the Integrated Projects will have a high level of management autonomy including, where appropriate, the possibility to adapt the partnership and the content of the project. They will be carried out on the basis of overall financing plans preferably involving significant mobilisation of public and private sector funding, including funding or collaboration schemes such as Eureka, EIB and EIF.

### 3. SPECIFIC TARGETED RESEARCH OR TRAINING PROJECTS

Specific Targeted Research Projects will aim at improving European competitiveness. They should be sharply focussed and will take either of the following two forms, or a combination of the two:

- (a) a research and technological development project designed to gain new knowledge either to improve considerably or to develop new products, processes or services or to meet other needs of society and Community policies;
- (b) a demonstration project designed to prove the viability of new technologies offering potential economic advantage but which cannot be commercialised directly.

Specific Targeted Projects on Training will facilitate the timely diffusion of new knowledge on a European scale and better integrate national activities.

### 4. CO-ORDINATION ACTIONS

Co-ordination Actions are intended to promote and support the co-ordinated initiatives of a range of research and innovation operators aiming at improved integration. They will cover activities such as the organisation of conferences, meetings, the performance of studies, exchanges of personnel, the exchange and dissemination of good practices, setting up information systems and expert groups, and may, if necessary, include support for the definition, organisation and management of joint or common initiatives.

### 5. ACTIONS TO PROMOTE AND DEVELOP HUMAN RESOURCES AND MOBILITY

Actions to promote and develop human resources and mobility will be targeted at training, development of expertise or transfer of knowledge. They will involve support to actions carried out by natural persons, host structures, including training networks, and also by European research teams. The following instruments are available:

- ***Training Fellowships:*** These fellowships will be implemented in the same manner as the Marie Curie Fellowships which are defined in the framework of the Structuring programme “Human resources and Mobility”.
- ***Special Training Courses:*** Support will be provided for courses aimed at maintaining a high level of expertise and competence within the Community on nuclear matters.
- ***Grants for Co-operating with Third Countries:*** Grants will be provided to young research workers from the countries of Central and Eastern Europe (CEE) and the new independent States (NIS) of the former Soviet Union to work in Community laboratories actively involved in the implementation of research funded by this or previous Euratom programmes at the time the exchange occurs.
- ***Trans-national Access to Large Infrastructures:*** Community support will be provided to research teams (including individual researchers) working in Member States and Euratom FP6 Associated States to obtain access to individual unique research infrastructures, located in a state other than their own, which they require for their work.

## **6. SPECIFIC SUPPORT ACTIONS**

Specific Support Actions will complement the implementation of the Framework Programme and may be used to help in preparations for future Community research and technological development policy activities including monitoring and assessment activities. In particular, they will involve trans-national access to research infrastructures, conferences, seminars, studies and analyses, working groups and expert groups, operational support and dissemination, information and communication activities, or a combination of these, as appropriate in each case.

## **7. INTEGRATED INFRASTRUCTURE INITIATIVES**

Integrated Infrastructure Initiatives should combine in a single action several activities essential to reinforce and develop research infrastructures, in order to provide services at the European level. To this end, they should combine networking activities with a support activity (such as relating to trans-national access) or research activities needed to improve infrastructure performance, excluding, however, the financing of investment for new infrastructures, which can only be financed as Specific Support Actions. They will include a component of dissemination of knowledge to potential users, including industry and in particular to SMEs.

## ANNEX IV: COMMON EVALUATION CRITERIA FOR EVALUATING PROPOSALS

A number of evaluation criteria are common to all the programmes of the Sixth Framework Programme and are set out in the European Parliament and the Council Regulations on the Rules for Participation (Article 10). These are:

- a) “Scientific and technological excellence and the degree of innovation;
- b) Ability to carry out the indirect action successfully and to ensure its efficient management, assessed in terms of resources and competences and including the organisational modalities foreseen by the participants;
- c) Relevance to the objectives of the specific programme;
- d) European added value, critical mass of resources mobilised and contribution to Community policies;
- e) Quality of the plan for using and disseminating the knowledge, potential for promoting innovation, and clear plans for the management of intellectual property.”

Furthermore, in applying paragraph (d) above, the following criteria are also to be taken into account:

- a) “For networks of excellence, the scope and degree of the effort to achieve integration and the network’s capacity to promote excellence beyond its membership, as well as the prospects of the durable integration of their research capabilities and resources after the end of the period covered by the Community’s financial contribution;
- b) For integrated projects, the scale of the ambition of the objectives and the capacity of the resources to make a significant contribution to reinforcing competitiveness or solving societal problems;
- c) For integrated initiatives relating to infrastructure, the prospects of the initiative’s continuing long term after the end of the period covered by the Community’s financial contribution.”

As set out in the Rules for Participation, the calls for proposals determine, in accordance with the type of instruments deployed or the objectives of the RTD activity, how the criteria set out above are applied by the Commission.

The purpose of this annex is to indicate how these criteria shall be applied. In particular, as the Sixth Framework Programme contains a differentiated set of instruments, the way in which each criterion translates into the issues to be examined as the basis for marking proposals will differ. In evaluating against these criteria, the checklists of issues set out in the following pages are intended to be universal for each type of instrument.

**Unless otherwise specified in the relevant parts of this work programme or Annex, the principal issues set out below (ie, the main numbered headings) will be given equal weighting in the evaluation.** For each principal issue, a minimum score to be achieved is also indicated as well as a minimum overall score for each instrument. Proposals that fail to achieve these minimum threshold scores shall be rejected. Any departures from these threshold scores are indicated in the relevant part of this work programme.

In addition to the basic checklists below and any specific criteria or interpretations of the criteria required for a call, the following issues are also addressed for all proposals at any appropriate moment in the evaluation:

- Are there **gender** issues associated with the subject of the proposal? If so, have they been adequately taken into account?
- Have the applicants identified the potential **ethical** and/or **safety** aspects of the proposed research regarding its objectives, the methodology and the possible implications of the results? If so, have they been adequately taken into account in the preparation of the proposal?
- An ethical check will take place for all proposals during the evaluation. A specific ethical review will be implemented following the evaluation for proposals recommended for funding and which deal with specific sensitive issues or whenever recommended following the ethical check during the evaluation. To this end, additional information on ethical aspects may be requested from proposers to allow the specific ethical review to be carried out (see the Section later in this Annex on “*The ethical review of proposals*” for more details on the criteria to be applied).

When appropriate, the following additional issues may also be addressed during the evaluation:

- To what extent does the proposal demonstrate a readiness to engage with actors beyond the research community and the public as a whole, to help spread awareness and knowledge and to explore the wider **societal implications** of the proposed work?
- Have the synergies with **education** at all levels been clearly set out?
- If **third country participation** is envisaged in the proposal, is it well justified and the participation well integrated in the activities?

## *Integrated Projects (IP)*

The following set of issues is intended to be a common basis for the evaluation of proposals for integrated projects.

1. Relevance (threshold score 3 out of 5)

- The extent to which the proposed project **addresses the objectives** of the work programme.

2. Potential impact (threshold score 3 out of 5)

The extent to which:

- the proposed project is **suitably ambitious** in terms of its strategic impact on **reinforcing competitiveness (including that of SMEs) or on solving societal problems**.
- the innovation-related activities and exploitation and/or dissemination plans are adequate to ensure **optimal use of the project results**.
- the proposal demonstrates a clear **added value** in carrying out the work at European level and takes account of research activities at national level and under European initiatives (eg, Eureka).

3. S&T excellence (threshold score 4 out of 5)

The extent to which:

- the project has **clearly defined objectives**.
- the objectives represent **clear progress beyond the current state-of-the-art**.
- the **proposed S&T approach** is likely to enable the project to achieve its objectives in research and innovation.

4. Quality of the consortium (threshold score 3 out of 5)

The extent to which:

- the participants collectively constitute a **consortium of high quality**.
- the participants are **well-suited and committed to the tasks** assigned to them.
- there is **good complementarity** between participants.
- the **profiles** of the participants, including those to be included later, have been clearly described.
- the opportunity for a real involvement of **SMEs** has been adequately addressed.

5. Quality of the management (threshold score 3 out of 5)

The extent to which:

- the **organisational structure** is well matched to the complexity of the project and to the degree of integration required.
- the **project management** is demonstrably of high quality.
- there is a satisfactory plan for the **management of knowledge**, of intellectual property and of other innovation-related activities.

6. Mobilisation of resources (threshold score 3 out of 5)

The extent to which:

- the project mobilises the **critical mass of resources** (personnel, equipment, finance...) necessary for success.
- the **resources** are **convincingly integrated** to form a coherent project.
- the overall **financial plan** for the project is adequate.

Overall threshold score 24 out of 30 (ie, a score of 80% of the maximum possible).

The following set of issues is intended to be a common basis for the evaluation of proposals for networks of excellence.

1. Relevance (threshold score 3 out of 5)

- The extent to which the proposed project **addresses the objectives** of the work programme.

2. Potential impact (threshold score 3 out of 5)

The extent to which:

- Europe has a **strategic need to strengthen S&T excellence on the topic** by means of a restructuring of the existing research capacities and the way research is carried out.
- the goals of the network are, in that connection, **suitably ambitious** particularly, in terms of achieving European leadership and acting as a world force on this topic.
- the proposal demonstrates a clear **added value** in carrying out the work at European level and takes account of research activities at national level and under European initiatives (e.g. Eureka).
- there is an effective plan for **spreading excellence**, exploiting results and disseminating knowledge to those outside the network, including SMEs.
- the proposed **approach is likely to have a durable structuring impact** on European research.

3. Excellence of the participants (threshold score 3 out of 5)

The extent to which:

- the **participants are** currently conducting **excellent research** relevant to the topic of the network or are capable of important contributions to the joint programme of activities.
- the participants are **well suited to the tasks** assigned to them.
- they **collectively have the necessary critical mass of expertise and resources** to carry out the joint programme of activities successfully.

4. Degree of integration and the joint programme of activities (threshold score 4 out of 5)

The extent to which:

- the expected **degree of integration** justifies supporting the proposal as a network of excellence.
- the **joint programme of activities is** sufficiently well designed to achieve the expected degree of integration.
- the participating organisations have made a convincing commitment towards a **deep and durable integration** continuing beyond the period of Community support.

5. Organisation and management (threshold score 3 out of 5)

The extent to which:

- the organisational structure of the network provides a **secure framework for any necessary structural decisions** to be taken
  - the **management of the network is** demonstrably of high quality.
- there is a well-considered plan for **promoting gender equality** in the network.

Overall threshold score 20 out of 25 (ie, a score of 80% of the maximum possible).

## ***Specific Targeted Research or Training Projects (STREP)***

The following set of issues is intended to be a common basis for the evaluation of proposals for Specific Targeted Research or Training Projects.

1. Relevance (threshold score 3 out of 5)

- The extent to which the proposed project **addresses the objectives** of the work programme.

2. S&T excellence (threshold score 4 out of 5)

The extent to which:

- the project has clearly **defined and well focused objectives**.
- the objectives represent **clear progress beyond the current state-of-the-art**.
- the **proposed S&T approach** is likely to enable the project to achieve its objectives in research or training

3. Potential impact (threshold score 3 out of 5)

The extent to which:

- the proposed project is likely to have an **impact on reinforcing competitiveness or on solving societal problems**.
- the proposal demonstrates a clear **added value** in carrying out the work at European level and takes account of research activities at national level and under European initiatives (e.g. Eureka).
- exploitation and/or dissemination plans are adequate to ensure **optimal use of the project results**.

4. Quality of the consortium (threshold score 3 out of 5)

The extent to which:

- the participants collectively constitute a **consortium of high quality**.
- the participants are **well-suited and committed to the tasks** assigned to them.
- there is **good complementarity** between participants.
- the opportunity of involving SMEs has been adequately addressed.

5. Quality of the management (threshold score 3 out of 5)

The extent to which:

- the **project management** is demonstrably of high quality.
- there is a satisfactory plan for the **management of knowledge**, of intellectual property and of other innovation-related activities.

6. Mobilisation of resources (threshold score 3 out of 5)

The extent to which:

- the project foresees the **resources** (personnel, equipment, financial...) necessary for success.
- the **resources** are **convincingly integrated** to form a coherent project.
- the overall **financial plan** for the project **is adequate**.

Overall threshold score 21 out of 30 (ie, a score of 70% of the maximum possible).

The following set of issues is intended to be a common basis for the evaluation of proposals for coordination actions.

1. Relevance (threshold score 3 out of 5)

- The extent to which the proposed project **addresses the objectives** of the work programme.

2. Quality of the coordination (threshold score 4 out of 5)

The extent to which:

- the research actions/programmes to be co-ordinated are of **demonstrably high quality**
- The **coordination mechanisms** proposed are sufficiently **robust** for ensuring the goals of the action

3. Potential impact (threshold score 3 out of 5)

The extent to which:

- the proposal demonstrates a clear **added value** in carrying out the work at European level and takes account of research activities at national level and under European initiatives (e.g. Eureka).
- the Community support would have a real impact on the action and its scale, ambition and outcome.
- the project mobilises a critical mass of resources in Europe
- exploitation and/or dissemination plans are adequate to ensure **optimal use of the project results**, where possible beyond the participants in the project.

4. Quality of the consortium (threshold score 3 out of 5)

The extent to which:

- the participants collectively constitute a **consortium of high quality**.
- the participants are **well-suited to the tasks** assigned to them.
- the project combines the **complementary expertise** of the participants to generate added value with respect to the individual participants' programmes.

5. Quality of the management (threshold score 3 out of 5)

The extent to which:

- the **project management** is demonstrably of high quality.
- there is a satisfactory plan for the **management of knowledge**, of intellectual property and of other innovation-related activities.

6. Mobilisation of resources (threshold score 3 out of 5)

The extent to which:

- the project provides for the **resources** (personnel, equipment, financial...) necessary for success.
- the **resources** are **convincingly integrated** to form a coherent project.
- the overall **financial plan** for the project **is adequate**.

Overall threshold score 21 out of 30 (ie, a score of 70% of the maximum possible).

## *Specific Support Actions*

The following set of issues is intended to be common to all parts of FP6 for the evaluation of proposals for specific support actions.

1. Relevance (threshold score 4 out of 5)

The extent to which

- the proposal addresses key issues defined in the work programme/call, specific programmes or ERA, as appropriate.

2. Quality of the support action (threshold score 3 out of 5)

The extent to which:

- the proposed objectives are sound and the proposed approach, methodology and work plan are of a sufficiently high quality for achieving these objectives.
- the applicant(s) represent(s) a high level of competence in terms of professional qualifications and/or experience.
- the proposed activities are innovative and original (*if applicable*).

3. Potential impact (threshold score 3 out of 5)

The extent to which:

- the impact of the proposed work can only be achieved if carried out at European level.
- the Community support would have a substantial impact on the action and its scale, ambition and outcome.
- exploitation and/or dissemination plans are adequate to ensure **optimal use of the project results**, where possible beyond the participants in the project.

4. Quality of the management (threshold score 3 out of 5)

- the extent to which the management structure is credible in terms of professional qualifications, experience, track record and capacity to deliver.

5. Mobilisation of resources (threshold score 3 out of 5)

- the extent to which the project provides for the **resources** (personnel, equipment, financial...) necessary for success.
- the overall **financial plan** for the project **is adequate**.

Overall threshold score 17.5 out of 25 (ie, a score of 75% of the maximum possible).

*(i) Fundamental objectives of the Integrating Activity* (threshold score 3 out of 5)

**Relevance to the objectives of the Integrating Activities scheme**

- the extent to which the proposed programme provides an integrated service of Europe-wide relevance in its field.

**Long-term sustainability and structuring effect**

- the structuring impact of the proposal, in terms of the collaborative arrangements put into place and of the perspectives for their long-term sustainability.

*Proposed activities of the Integrating Activity:*

*(ii) Networking activities (mandatory)* (threshold score 3 out of 5)

**Relevance to the objectives of the networking activities**

- the potential and overall coherence of the networking activities to enhance the services provided by the infrastructures concerned;

**Quality of the plan for using and disseminating knowledge**

- the capacity to use and disseminate the knowledge derived from all the activities of the Integrating Activity among operators/users of related infrastructures.

**Quality of the management**

The extent to which:

- the participants have appropriate management skills, assessed in terms of resources, competence and organisation of the overall consortium management;
- a clear justification is given of the corresponding budget, divided by tasks and by participants.

*(iii) Transnational access activities (optional)* (threshold score of 3 out of 5)

The criteria to be applied to each infrastructure offering access will be the same as the criteria for individual Transnational Access scheme, namely: **S&T excellence**, **Quality of the management** and **European added value** (see the entry on trans-national access elsewhere in this Annex). Finally, evaluators will assess the overall value of the whole range of proposed access activities, as a single block:

**Relevance to the objectives of the access activities**

- the extent to which the infrastructures giving access offer a coherent and effective set of high quality services to the scientific community.

*(iv) Joint research activities (optional)* (threshold score of 3 out of 5)

Similarly to the previous block of activities, the evaluation of joint research projects will start with an individual assessment of each specific project:

**S&T excellence**

The extent to which:

- the proposed project is scientifically and technologically innovative and represents a clear progress beyond the current state-of-the-art.
- the proposed research approach and technical programme adequately supports the stated objectives, in a clear and justified way,

**Quality of the management**

The extent to which:

- the project management and the competence of each partner are appropriate for the intended work;
- there is a clear description and justification of the corresponding budget, divided by tasks and by participants.

**European added value**

- the extent to which the results of the project are applicable and can improve access to the corresponding pool of research infrastructure in Europe.

Finally, evaluators will assess the overall value of the whole range of proposed research projects, as a single block:

**Relevance to the objectives of the research activities**

- the extent to which the proposed research projects offer an adequate optimisation of mutual synergies and maximise the potential impact on related infrastructures.

Overall threshold score of 14 out of 20 or pro-rata if some criteria are not applicable (ie, a score of 70% of the maximum possible).

**S&T excellence** (threshold score of 3 out of 5; weight 40%)

The extent to which:

- the infrastructure is offering access to state-of-the-art facilities or services that are rare or unique in Europe;
- the services offered by the infrastructure and its research environment enable users to conduct high quality research (as measured also by past achievements).

**Quality of the management** (threshold score of 3 out of 5; weight 20%)

- The extent to which the infrastructure can provide external users with adequate scientific, technical and logistic support.

**European added value** (threshold score of 3 out of 5; weight 40%)

The extent to which:

- the infrastructure can attract potential users, in particular from countries other than the country where the operator of the infrastructure is established;
- the proposal represent good value for money in terms of amount of access, number of users from different countries and other expected impacts.

The evaluation of proposals, through the above criteria, for infrastructures involved in contracts for similar activities under earlier Framework Programmes will also take into account any ex-post evaluations conducted under those Programmes.

Overall weighted threshold score 3.5 out of 5 (ie, a score of 70% of the maximum possible)

***Fellowships and Grants to Third Countries***

Reference evaluation criteria	Activity Specific Evaluation Criteria	
	Intra-European Fellowships and Grants to Third Countries	European Re-integration Grants
<b>Criterion (a):</b> Scientific & technological excellence and the degree of innovation	<b>Scientific Quality of the Project (No threshold, weight 15%)</b> - Scientific/ technological quality of the project - Is the scientific content of the project important and relevant - Originality/innovative aspects - Assessment of the research method - Assessment of the interdisciplinary and multidisciplinary aspects of the proposal - Does the proposal describe the state of the art for the scientific area and the relevance of the project	<b>Scientific Quality of the Project (No threshold, weight 15%)</b> - Scientific/ technological quality of the project - Is the scientific content of the project important and relevant - Assessment of the research method - Assessment of the originality and innovative nature of the project or training area
	<b>Quality of Research Training (Threshold score 3 out of 5, weight 15%)</b> - Clarity and quality of the research training objectives for the researchers - Complementary training and skills offered	<b>Quality of Research Training (No threshold, weight 5%)</b> - Clarity and quality of the research training objectives for the researchers
<b>Criterion (b):</b> Ability to carry out successfully and to ensure its efficient management, assessed in terms of resources and competencies and incl. The organisational modalities foreseen by the participants	<b>Quality of Host (No threshold, weight 15%)</b> - Scientific expertise in the field - Quality of the group/supervisors - Expertise in training researchers in the field and their capacity to provide mentoring/tutoring - International collaborations - Quality of infrastructure / facilities	<b>Quality of Host (No threshold, weight 15%)</b> - Scientific expertise in the field - Quality of infrastructure / Facilities - Expertise in training researchers in the field and their capacity to provide mentoring/tutoring; - Quality of the group/supervisors - International collaborations
	<b>Quality of Researchers (Threshold score 4 out of 5, weight 15%)</b> - Research experience - Research results - Independent thinking and leadership qualities - Potential for the development of the researchers - Suitability of skills for the project proposed	<b>Quality of the Researchers (No threshold, weight 20%)</b> - Research experience - Research results - Independent thinking and leadership qualities - Adequacy of skills for the project proposed - Initial results from Marie Curie or Euratom training fellowship
	<b>Management and Feasibility (No threshold, weight 5%)</b> - Practical arrangements for the implementation and management of the fellowship or the grant - Feasibility and credibility of the project - Methodological approach to the project and work plan	<b>Management and Feasibility (No threshold, weight 10%)</b> - Practical arrangements for the implementation and management of the fellowship - Feasibility and credibility of the project - Methodological approach to the project and work plan

<p><b>Criterion (c):</b> Relevance to the objectives of the specific programme</p>	<p><b>Relevance to the objectives of the Scheme / Activity</b> <b>(No threshold, weight 25%)</b></p> <ul style="list-style-type: none"> <li>- Benefit to the researchers from the period of advanced training/mobility</li> <li>- Match between project and researchers' profile</li> <li>- Likelihood for the researchers to pursue the line of research after end of fellowship or grant</li> <li>- Capacity of the fellowship or grant to enhance EU scientific excellence (where appropriate)</li> </ul>	<p><b>Relevance to the objectives of the Scheme / Activity</b> <b>(Threshold score of 3 out of 5, weight 15%)</b></p> <ul style="list-style-type: none"> <li>- Benefit to the career of the researchers from the training/period of re-integration</li> <li>- Match between project and researchers' profile</li> <li>- Potential for professional integration and long-term job stability for the researchers</li> <li>- Supplementary added value by host through own contribution offered in terms of additional support for integration of the researcher</li> <li>- Capacity to attract future funding</li> </ul>
<p><b>Criterion (d):</b> EU added value, critical mass of resources and contribution to Community policies (incl. Criteria for NOE, IP and RI)</p> <p><b>Criterion (e):</b> Quality of the plan for using or disseminating the knowledge, potential for promoting innovation, and clear plans for the management of intellectual property</p>	<p><b>Added Value to the Community</b> <b>(No threshold, weight 10%)</b></p> <ul style="list-style-type: none"> <li>- Extent to which the proposed fellowship contributes towards the objectives of the European Research Area</li> <li>- Benefit of mobility through the transfer of knowledge and improved collaborations through the mobile researchers;</li> <li>- Contribution to research excellence and European competitiveness</li> <li>- Potential for improving the gender balance in the scientific/training area</li> </ul>	<p><b>Added Value to the Community<sup>19</sup></b> <b>(No threshold, weight 20%)</b></p> <ul style="list-style-type: none"> <li>- Extent to which the proposed fellowship contributes towards the objectives of the European Research Area</li> <li>- Contribution to European research excellence and European competitiveness</li> </ul>

Overall weighted threshold score of 3.5 out of 5 (ie, a score of 70% of the maximum possible)

<sup>19</sup> Researchers applying for a European Re-integration fellowship will be awarded the maximum mark for Added Value to the Community if returning to the country of their nationality

## *The ethical review of proposals*

In accordance with Article 3 of the Framework Programme and Article 10 of the Rules for Participation, the evaluation procedure includes a check of any ethical issues raised by proposals. A specific ethical review of proposals involving sensitive ethical issues may take place after the evaluation and before any selection decision by the Commission. For this purpose, an ethical review (ER) panel may be convened.

The ER panel assesses the following elements:

- The awareness of the proposers of the ethical aspects of the research they propose
- Whether the researchers respect the ethical requirements of the 6<sup>th</sup> Framework Programme
- Whether the proposers have taken into account the legislation, regulations and/or guidelines in place in the country(ies) where the research takes place
- Whether the relevant international conventions and declarations are taken into account<sup>20</sup>
- Whether the relevant Community Directives are taken into account.
- Whether the proposer is seeking the approval/favourable opinion of relevant local ethics committees

For research involving human beings, the ER panel assesses in particular:

- The information which is given to the participants (healthy volunteers, tissue donors, patients, etc)
- Measures taken to protect participants' personal data (including genetic data) and privacy
- Recruitment criteria and means by which the recruitment is to be conducted
- Level of care offered to participants

For research involving isolated or banked human embryonic stem cells in culture and foetal tissues and cells, the ER panel assesses in particular:

- Whether the proposers have taken into account the legislation, regulations and/or codes of conduct in place in the country(ies) where the research using human embryonic stem cells in culture will take place. The procedures for obtaining informed consent
- The source of the human embryonic and foetal tissues/cells
- Measures taken to protect personal data (including genetic data) and privacy
- The nature of financial inducements, if any

For research involving animals, the ER panel assesses in particular:

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<sup>20</sup> Charter of Fundamental Rights of the European Union, signed in Nice, 7 December 2000  
Convention on Human rights and Biomedicine – Oviedo, 4.04. 1997 - Council of Europe and the Additional protocol on the prohibition of Cloning of human beings (1998)  
Universal declaration on the Human genome and human rights - Unesco - 11 November 1997  
Declaration of Helsinki (in its latest version) - World Medical Association  
Convention on the Rights of the Child – United Nations - 20 November 1989  
Amsterdam protocol on an animal protection and welfare

- Whether the proposers are applying the 'Three Rs' principle: Replacement, Reduction and Refinement, and in particular:
  - ◆ Are animal experiments replaced by alternatives whenever possible?
  - ◆ Is animal suffering avoided or kept to a minimum?
  - ◆ Is animal welfare guaranteed and are the principles of bio-diversity respected?