



External Advisory Group  
"Nuclear Fission"  
Secretariat

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# First Report of the External Advisory Group on Nuclear Fission

## Introduction

The External Advisory Group (EAG) met on three occasions in November and December, 1998, to assist the Commission in establishing the content and orientation of the key action on nuclear fission. The formal mandate of the EAG is restricted to the key action. However, because much of the generic research on the radiological sciences is in direct support of the key action, the Group judged that it was appropriate to extend its advice to this area.

A working document, prepared by the Commission's Services, was used by the EAG as the basis of its discussions. In this working document, the objectives and priorities set out in the draft Council Decision on the Specific Programme in the area of nuclear energy were further developed.

## Consistency with the objectives of the specific programme

The EAG concluded that the research and training (RT) activities outlined in the working document are fully consistent with the objectives of the key action on nuclear fission and the generic research on radiological sciences, as set out in the draft Council Decision adopting a research and training programme (Euratom) in the field of nuclear energy. The rationale, set out in the working document, also provided a sound basis and justification for the programme. Subject to some detailed comments and recommended changes (see below), the EAG broadly supported the scope, content and structure of the RT priorities set out in the working document.

## Grouping of RT activities

The EAG noted that the grouping of RT activities in the working document did not strictly follow that set out in the draft Council Decision on the Specific Programme. This re-grouping did not affect the scope, nor the content, of the proposed research activities and was being proposed by the Commission's Services solely to enhance the clarity of the programme and facilitate its implementation. The main changes concern: restriction of the section on "Safety of the fuel cycle" to the management and disposal of spent fuel and waste and partitioning and transmutation; the inclusion of severe accident research in the section on "Operational safety of existing installations" and the separation of "evolutionary" (ie, developments based on existing technologies) from more "innovative" concepts. The EAG recognised the need to re-group some of the RT activities and supported the Commission Services' proposal subject to number of small modifications.

## **Co-ordination with JRC Programme**

Several topics within the key action are common to the direct action programme of the Joint Research Centre (JRC). These comprise the ageing of materials and components, fuel cycle safety, the study of irradiated fuels with a view to direct disposal and the study of severe accidents. The EAG stressed the importance of proper co-ordination of the activities between the two programmes, in particular to avoid duplication and ensure complementarity. The EAG will examine how this co-ordination is being achieved during the implementation of the programme.

## **Objectives and Targets**

The EAG supported the approach, adopted in the working document, to define clear objectives and sub-objectives for each main area of the key action on nuclear fission and generic research on radiological sciences. The EAG examined whether it would be possible to develop more quantitative targets for some or all of the areas; it concluded that this was not practicable and that the objectives, as formulated in the working document, were sufficient to define clearly the scope and intent of the programme.

## **Strategy for call for proposals and priorities for 1999**

The EAG expressed a strong view that all elements of the programme, both key action and generic research, should be implemented at the earliest opportunity. They saw no reason, of a technical or scientific nature, for delaying the implementation of one or other element of the proposed research.

The EAG recognised that the scope and content of the calls that could be made in 1999 would be influenced by budgetary considerations. Given the anticipated budgetary constraints, they supported an approach whereby one targeted call (to be accompanied by an open call for generic research) would be made in early 1999 covering all topics in the key action; the call would contain two deadlines for submission for different research topics. Topics within the first deadline would be supported with budgetary resources from 1999 and those within the second with resources from 2000. The EAG advised the Commission to take account of the following when deciding which topics should be included within the first deadline for submission: operational importance, project lead time and the relative priority which the EAG had expressed on the different research areas.

## **Evaluation criteria**

Evaluation criteria were only discussed in general terms. The EAG will examine this issue in due course when the Commission documents its proposed approach.

## **Detailed Comments**

In developing its advice on the scope, content and structure of the programme, the EAG drew particular attention to the following:

- The EAG noted that there were some differences between the text of the working document and that in the draft Council Decision. As far as practicable, they recommended that the wording of the Council Decision should be adopted.
- The EAG expressed concern that some of the objectives in the working document may be overly ambitious and that they should be made more practicable in order to be achievable within the programme constraints.

- The EAG concluded that all of the RT activities identified in the working document were important for achieving the programme objectives and that all should receive support. Judgements were expressed on the relative importance of the different RT activities within the key action on nuclear fission; in most cases, there was consensus within the EAG but in a limited number of areas there were divergent views on relative priorities (but not in terms of absolute importance for achieving the programme objectives).
- The EAG expressed concern over the title of one of the programme areas in the draft Council Decision, namely “The safety of existing installations” as this appeared to preclude research on “next generation” technologies of the same type. The EAG strongly recommended that changes were made to either the title or RT priorities within this area in order not to preclude such research.
- There was some concern that, in the sub-area “Plant life extension and management”, support might be given to activities that were solely of commercial benefit to individual utilities. The EAG recommended that support in this area should be strictly limited to those activities which clearly had a potential for broader public benefit.
- The EAG agreed that research on accelerator driven systems (ADS) (within the area on partitioning and transmutation) should have priority but that this should not exclude support for research on other systems. Research should, at this stage, be limited to design studies and supporting R&D.
- The EAG noted that similar topics (eg, internal and external dosimetry, restoration of contaminated environments) were included in both the key action and in the generic research and that there was a risk of duplication. Recommendations were made on how to minimise this risk, in particular by maintaining a very clear distinction between the objectives of the two elements of the programme and ensuring that only those RT priorities responding directly to these objectives were included. Proposals were made to re-allocate some of the identified RT activities between the key action and generic research. Appropriate measures should, in addition, be taken during programme implementation to benefit from complementarity between research in the respective areas.
- The EAG recommended two more important modifications/additions to the RT activities in the generic research on radiological sciences: firstly, to include research on the exposure of air crew to cosmic radiation and, secondly, to better define the scope of research to be carried out in the area of genomic instability.