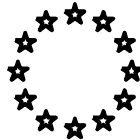


**2002 MONITORING REPORT
ON THE
SPECIFIC PROGRAMME FOR
RESEARCH AND TECHNOLOGICAL
DEVELOPMENT**



**IN THE FIELD OF
NUCLEAR FISSION
and RADIATION PROTECTION**

**Version f-2
[7 April 2003]**

This Report is part of a series of annual monitoring reports prepared relating to the EC Framework Programme and the Euratom Framework Programme, and their Specific Programmes as well as to the European Research Area (ERA) and related activities.

The Commission has over the years given increasing emphasis to the evaluation of Community RTD activities. Furthermore, with the overall Reform of the Commission, evaluation activities are placed in the heart of the decision making process.

In line with this continuous effort for improvement, a revised programme-monitoring scheme was introduced in 2001, based on the system launched in 1995, which involved independent external experts in the monitoring activities. The new mechanism aims at a better synergy between the monitoring of ERA and Specific Programmes and of the Framework Programme.

The timely response by the Programme management to the recommendations produced by the experts will be enhanced, providing the basis for a quick response mechanism to programme developments, as the follow up of experts recommendations will be receiving still more attention.

This report is the fourth covering the Fifth Framework Programme; the report also highlights progress in relation to implementation of ERA to the launch of the Sixth Framework Programme and results and impact of previous Framework Programmes. The report should help to reinforce establishment of best practices and identify the scope for further improvements in implementation of policy and programmes.

The reports consists of two parts:

Part A: *External monitoring report prepared by the following experts:*

*Sören NORRBY (Chairman)
Henri METIVIER (Rapporteur)
Harri TUOMISTO*

Part B: *Responses of the Programme management to the external monitoring report.*

PART A

**REPORT OF THE 2002 FRAMEWORK PROGRAMME
MONITORING PANEL**

1 - EXECUTIVE SUMMARY

The fission and radiation protection programme is carried out under one of two key actions of the nuclear energy research and training programme (Euratom programme), the generic research on radiological sciences and the support for research infrastructure.

The objectives of the fission key action is to enhance the safety of Europe's nuclear installations and improve the competitiveness of Europe's industry by ensuring the protection of workers and the public from radiation and the safe and effective management and final disposal of radioactive waste. An other objective is to explore innovative concepts and to contribute towards maintaining a high level of expertise and competence in nuclear technology safety.

The objectives of generic research is to consolidate and advance European knowledge and competence in the radiological sciences that are essential for the safe and competitive use of nuclear fission and other industrial and medical use of ionising radiation, including the management of natural radiation sources.

During 2002 officers of Unit J4 negotiated and concluded 45 contracts proceeded from 83 proposals received as responses to the last calls for FP5. The financial contribution to the signed contracts was 11 M€. The main evaluation was performed in February 2002 and covered cost shared actions, concerted actions and thematic networks from all areas of the programme. It also covered extensions of existing contracts to NAS partners. The evaluation performed in July 2002 covered cost shared actions, concerted actions and thematic networks in two sub-topics of the area "radiation protection and health".

An invitation to submit expressions of interest (EoI) to use the new instruments, Network of excellence (NoE) and Integration projects (IP) in the areas of "management of radioactive waste" and "radiation protection" was made in March 2002. They were assessed in July 2002 with the assistance of external experts and the results were published on CORDIS site in autumn 2002. The commission has noted the weakness of answers as regards the definition of the new tools and for many EoIs the answer was a continuation of FP5 projects, the main difficulty being the establishment of new NoEs.

During 2002, the officers of Unit J4 have spent much time in the preparation of FP6; negotiations in the Council, preparation of the work programme and extensive information activities concerning the instruments to be used in FP6. The first call for proposals was published in December 2002. They have also actively participated in the meetings, thus contributing to the scientific work of international organisations. They have organised conferences and seminars and preparation of useful leaflets for describing the program for decisions-makers and media.

Specific Comment 1: *Implementation of FP5*

The objectives of the programs, in terms of implementation have been fulfilled. 2002 was the final year to select FP5 projects. A good coverage of the programme areas have been achieved over the period 1999 – 2002.

Specific Comment 2: *Staff and efforts for preparing the FP6*

The staff in Unit J4 of DG Research is very competent and quite positive to their work. We also understood that the attitude towards FP6 and the accompanying instruments (IP and NoE) is positive. The self-assessment report was of good quality. We had good and open discussions, meaning that everyone seemed to express his/her view without any real hesitation. Much of the work in 2002 has been devoted to the preparations for FP6. One of these preparations was the Expressions of Interest, an opportunity for organisations to give proposals for possible NoEs and IPs. The evaluation of this

indications is of a big interest but also that the understanding of the new instruments, especially NoE, should be improved. The 1st call for proposals was issued in December 2002, in agreement with the time schedule.

Specific Comment 3: *Uncertainties about how to use the new instruments*

The new instruments (NoE and IP) seem to be understood and accepted in principle at the level of advisory committees. But we think that the evaluation of the Expressions of Interest demonstrates that there were uncertainties in the scientific world about when and how to use the new instruments in addition to the earlier ones. This is not strange, but advise and follow up will be needed. It should however be noted that the Commission since this evaluation has undertaken important information activities.

Specific Comment 4: *Dissemination of results*

One issue that needs further efforts is the dissemination of results. Maybe the dissemination to the scientific community works rather well (even if also this could be questioned) but the information of decision makers and the general public still needs to be improved. This will be even more important as we emphasise the ERA in FP6.

We appreciate the individual initiative of scientific managers to produce press releases in collaboration with coordinators when a result seems new and interesting for the media. This is a good initiative. However, there is a tendency for media to focus on selected results rather than applied results for all topics of fission programme. Efforts should be made to achieve a proper balance in media between basic science and applied results.

The panel endorse a former recommendation for creating an editorial board for dissemination of results. We can take as example the special edition of RTD info publication "Talking science" which is clearly written by synergy of scientists and journalists. This document could be largely distributed in universities, institutions, etc.. for the benefit of ERA. This board should also decide on the selection of topics and plans for publication.

Recommendations specific to the SP programme

The panel considers that the general recommendations given below (Recommendations of General Significance) also should be applied for the SP Fission Programme.

- (1) The panel endorses a former recommendation for creating a editorial board for dissemination of results. It strongly recommends also continuing the ongoing efforts for producing comprehensive and informative leaflets.
- (2) Ethical aspects should be considered in defining some projects.
- (3) Balance between applied and fundamental research for radiobiological sciences has to be evaluated.
- (4) The commission has to reinforce cooperation and possible synergies between Euratom fission and fusion programmes.
- (5) Reinforce/or establish more concerted programmes with USA, Japan, the Russian Federation and other countries, in principle for all parts of the programme.
- (6) Efforts should be made to attract young people both in the research programme as well as in training programmes and we recommend promoting a European thought in member states on education and training in nuclear science.

(7) It is recommended that the Commission identifies and defines possible research needs, to support the development of the recently proposed directives on nuclear safety and nuclear waste safety.

Recommendations Of General Significance For The Whole FP/ERA

The panel considers that the general recommendations given below also should be applied for the SP Fission Programme.

(1) Frequency of monitoring should be reconsidered. Also the possibility of having specific themes for monitoring should be considered.

(2) The new instruments (IP and NoE) seem to be generally supported and seen as useful. However there is a need for help and assistance in how to implement them in an effective way.

(3) Use TIP actively as a tool for planning and follow up of result implementation but define the process in a more useful way and develop more useful forms.

(4) Involvement of administrative people both in direct contacts with national research organisations in the contractual phase but also in progress meetings etc in FP6.

(5) Introducing new terminology and definitions brings some confusion among the research community. In the future, the introduction of new terminology should be restricted to those cases when this is really needed.

(6) A process is needed by which new member states are given support (when needed) to be able to fully participate to the programme.

2 - PANEL METHODOLOGY

The 2002 monitoring exercise of the expert groups was structured as the previous monitoring exercise where horizontal level contacts and information exchanges between all the chairmen and members of the expert-groups were organized.

The expert sub-group Fission (the Panel) was established with the objective to monitor the efficiency of the Unit J4 Nuclear Fission and Radiation protection (the Unit), which comes under to the Directorate J, in charge of Research on Energy. According to the 2002 Guidelines for monitoring the Panel had to assess the year 2002 activity of the Unit related to the implementation of the FP5 Euratom Fission and Radiation Protection Programme (the Programme) with special emphasis on the launching of FP6, which will be a starting point for creating ERA. The Unit has produced a "Self-Assessment of the Programme Implementation" report, a new and important document describing and commenting the Unit activity during the year 2002. This monitoring report tries to point out strong points and weaknesses, in the 2002 management of the Programme exercised by the Unit and to give recommendations for actions. This report also emphasises the specific issues mentioned in the 2002 Guidelines for monitoring.

The methodology followed by the Panel included the following steps:

- Scrutinising the "Self-Assessment" of the Unit and the associated documents, more especially operational activities linked to the FP5 and preparation and discussion of the new tools for the FP6.
- Interviews with the Programme co-ordinators of the Unit and other officers from the Direction J

- Examination of the numerous general documents dealing with Nuclear energy and Radiation protection.
- Interviews with some national members of the advisory Committees,

The management of the Programme is organised in four distinct parts:

- Operational safety of existing installations
- Safety and efficiency of future systems,
- Safety of the fuel cycle,
- Radiation protection and generic research on radiological science.

In addition to projects the support from the Commission also includes Training and Accompanying measures.

The report structure is in compliance with the 2002 Guidelines for Monitoring. The Panel has focused its attention on the issues considered important for the implementation of the Programme, while avoiding duplicating the information of the "Self-Assessment" Unit report and the material and recommendations of the previous monitoring reports.

3 - INTRODUCTION

The purpose of this document is to monitor the efficiency of the Commission's management and programme implementation in the year 2002 on Nuclear Fission and Radiation Protection programs

This 2002 Monitoring Exercise will be the last external monitoring of FP5 programme and project management (except an external evaluation of the scientific value of the programme that will take place during 2003). The year 2002 was mainly a transition year from the FP5 to the FP6. The Commission received and evaluated 83 proposals for projects, fellowships and accompanying measures, requesting a financial contribution of about 44 M€. The financial commitments made in 2002 were according to plan and, it is therefore expected that the given budget will be needed.

An invitation to submit expressions of interest (EoI) to use the new instruments, Networks of Excellence and Integrated Projects in the areas of Management of radioactive waste and Radiation protection was made in March 2002 according to new recommendations given by Commissioner Busquin concerning the European Research Area concept. The intention was to identify topics or areas for which mature proposals could be expected. Of the fairly large number of EoIs only about 10-15% were addressing real NoE or IP, with a sufficiently ambitious objective. The rest were more or less projects and networks of a similar type as was used during FP5. The results of the EoI assessment have provided an important input to the preparation of the work programme and in particular to the first calls for proposals.

The discussion about maintaining a high level of expertise and competence in nuclear technology and safety or in radiological sciences for education of future radiation protection experts is still an important issue. These discussions have been reinforced with the introduction of the concept of network of excellence/competence.

The main political change in the European Union is the decision to enlarge the Union by 10 more states that will change status from "candidates" to "members" of the Union but

enlargement is already an important topic for the programme since 20 new institutions from new member states were already introduced in 2002 in existing projects.

Concerning the confidence of the general public in this field of activity, the panel has reviewed the system of the dissemination of results, and particularly documents concerning decision makers and stakeholders.

The panel was provided with sufficient documentation. Overall the panel was well satisfied with the support given by the staff of DG Research, and particularly with the very informative and open discussions with the Programme managers.

Overall objectives of monitoring

In accordance with the mandate of the 2002 monitoring exercise the overall objectives of the monitoring of the implementation of ERA and of the FPs and its specific programmes are set out as follows:

- To monitor the overall progress in ERA, FP and SP implementation in relation to their respective objectives, priorities and financial resources.
- To establish practices for intersection and feedback between day-to-day management and the establishment and follow-up of S/T or political priorities.
- To constitute input to policy makers and managers, particularly in the form of input to the spring progress report on ERA to the European Council, to the annual report on Community RTD activities (pursuant to Article 173 of the Treaty), to the five-year assessment (1999-2003), to the Commission's Annual Work Programme and planning cycle and to the Annual Activity Reports of relevant Commission Directorate Generals.

Our monitoring exercise focused on the first objective but also addressed the second and third objective.

Although, it was not in its mandate, the panel has wished to give some additional comments on the content of the FP program. This will be developed in a additive paragraph in the section 4.1.4.

4 - ANALYSIS AND FINDINGS

4.1 - ANALYSIS AND SYNTHESIS OF RECOMMENDATIONS AND THEIR FOLLOW-UP FROM the 1999 to 2001 MONITORING EXERCISES

After each monitoring exercise, the commission gives information concerning implementation or not for recommendations proposed by the panels. Annex 6.4 of this report is a document provided by the commission giving the status of commission's actions following the recommendations from the previous monitoring reports, 1999, 2000 and 2001. In the following we give comments on how some of the most important recommendations have been taken on board.

The Panel of 1999 recommended that a strategic review of the technical achievements of FP 4 and the preliminary outcome of the first calls of FP5 should be made before the second call for proposals are made. Such a review was made early March 2000. The advice of the EAG was sought and utilised. Further review was made in view of the preparation of FP6.

Already in 1999, the panel discussed the multiplicity of advisory groups. The experiences from FP5 showed a certain overlap between the activities of the EAG Fission, STC and CCE-Fission. As a consequence in FP6, while keeping STC and CCE-Fission, only one advisory group on energy (AGE) has been set up for the whole energy programme. This group shall give wide advice on the long-term energy research policy.

As requested by the 1999 panel, intensified activities have been undertaken in the preparation of FP6 and will continue to gain European Added Value by focusing some important research areas into European Networks of Excellence.

The 1999 panel assumed that the follow-up of education and training has not adequately dealt with a vision of the objectives and purposes of an EC funded programme, in spite of the production of an excellent report "How to maintain nuclear competence in Europe". The commission has included this point as an important topic of FP6. Specific actions for education and training are included in the first call of FP6. However the 2002 panel still recommends further work and more discussions on the role of member states and the commission. Indeed the decrease of the number of young scientists in this field of activity is rather a member state issue than a European one.

The 2000 panel recommended development and providing for specific indicators for showing yearly achievements of the programme, unfortunately, this was not addressed in the contracts signed during FP5.

The same panel recommended an assessment of mid term reports by external experts, this was not adopted by the commission due to administrative difficulties because mid-term reviews are not happening at the same time for all projects and it would have been necessary to have contracts specifying mid term assessments.

Information concerning rejected proposals is now more transparent than earlier by informing the proponents of the results within a few weeks after the evaluation as recommended by the 2000 panel.

The 2001 panel focused on dissemination of results into the non-technical world. To day, a series of non-technical short reports and leaflets have been prepared, more emphasis is put on publicity about the ongoing research. This is a good response by the commission to recommendations of the two last panels.

To make the EAV visible in different areas of the Programme, handbooks of the best practices and of the best tools to use should be issued in certain areas. This will help to improve safety based on available knowledge. The Commission services appreciate the usefulness of "handbooks" of best practices as good tools in particular in areas that are mature from a research point of view. Handbooks will be an effective tool for the dissemination of results of the research. It is also an important part of the total knowledge management that is an important component of the new instruments. The realisation of such handbooks will be carried out in the areas where such an approach will be particularly advantageous, as a part of the project work. This recommendation of the 2001 panel is being implemented.

A publishing policy recommended by the last panel is not yet implemented, but this action needs more time than the short interval between two successive monitoring exercises.

As recommended by the 2000 panel the commission has pursued special actions for the accessing countries to participate in ongoing projects; the commission services are also actively engaged in the work of other international organisations, e.g. IAEA, OECD/NEA and ICRP.

The general recommendations of the 2001 panel for the whole ERA/FP were followed by a first step in 2001 when a first mapping exercise was performed with the help of the programme committee. The outcome of this exercise was, however, not very clear. A possible second step could be to map the research activities in the areas of nuclear fission and radiation protection in the Member States and the Associated States. Again

the programme committee should be the right forum for such an exercise. As this is a large task it should preferably be carried out in two steps, one overview study followed by a more detailed study. The proposal has been preliminarily discussed in the programme committee; the result will be strongly dependent of the quality of the definition of the aims of this new exercise.

4.1.1 - Strategy – Objectives

The fission and radiation protection programme is carried out under:

- One of the two key actions of the nuclear energy research and training programme (Euratom programme),
- Generic research on radiological sciences and
- The support for research infrastructure.

The objectives of fission key action are to enhance the safety of Europe's nuclear installation and improve the competitiveness of Europe's industry by ensuring;

- The protection of workers and the public from radiation,
- The safe and effective management and final disposal of radioactive waste,
- To explore innovative concepts and
- To contribute towards maintaining a high level of expertise and competence on nuclear technology safety.

The objectives of generic research is to consolidate and advance European knowledge and competence in the radiological and nuclear sciences that are essential for the safe and competitive use of nuclear fission and other industrial and medical use of ionising radiation, including the management of natural sources.

FP5 has been carried through successfully. However, a need to have more focus on the realisation of a well-integrated research in the EU has been recognised and a number of activities performed during FP5 were made in the spirit of taking the first steps towards ERA. This will be described in section 4.2.5.

4.1.2 - Management and processes (including evaluation and monitoring)

This 2002 Monitoring Exercise will be the last external monitoring of FP5 programme and project management (except an external evaluation of the scientific value of the programme that will take place during 2003). The year 2002 was mainly a transition year from the FP5 to the FP6 with also the last year of the FP4 and few new programs were launched in the frame of FP5 for 2002.

The overviews of proposals and contracts concluded in 2002 can be found in the Table 1 of Annex 6.1. to this report. The Commission received and evaluated 83 proposals for projects, fellowships and accompanying measures, requesting a financial contribution of about 44 M€. This includes 24 proposals for inclusion of new partners from Newly Associated States (NAS) in existing projects, requesting a financial contribution of 1.4 M€. These proposals have been evaluated in five different evaluation periods. 45 proposals were selected to be negotiated and signed at the end of the year 2002 for a total amount of about 16 M€ - The EC contribution is about 11 M€. The call for proposals covered only some specific research areas. In addition, 11 other proposals that were received and selected in 2001 have been funded in 2002. A further 4,5 M€ were committed corresponding to the Commission's participation in the Phebus FP project. The financial commitments made in 2002 were according to plan and, the full commitment budget has been executed (16 M€).

The main evaluation of proposals was performed in February 2002, following the deadline of 21/01/02 and covered cost shared actions, concerted actions and thematic networks from all areas of the programme. As a result of this evaluation 12 projects including two

merged proposals were selected for immediate negotiations with a total proposed Community contribution of about 6 M€. Additionally, 15 extensions of existing contracts to NAS partners were also selected for immediate negotiations following the February 2002 evaluations. The Community contribution proposed was 0,9 M€.

The evaluation performed in July 2002 and following the deadline of 3/7/02, covered cost shared actions, concerted actions and thematic networks in the two sub-topics of the area "*radiation protection and health*", namely, "*mechanisms for and pre-disposition to radiation induced health effects*" and "*epidemiological studies*". As a result of this evaluation 3 projects were selected for immediate negotiations and a fourth, on the reserve list were negotiated at the end of the year, with a total proposed Community contribution of about 2,7 M€.

In addition proposals for individual fellowships (Marie Curie) and training and accompanying measures were evaluated once during the year. As a result of these evaluations, 5 fellowships, 4 training and 5 other accompanying measures were selected.

The breakdown by country is given in Annex 6.1, table 3 of this report.

An invitation to submit **expressions of interest** (EoI) to use the new instruments, Networks of Excellence and Integrated Projects in the areas of Management of radioactive waste and Radiation protection was made in March 2002, with a dead-line in June 2002. These were assessed in July 2002 with the assistance of external experts, with the intention to identify which topics or areas for which mature proposals could be expected. As a number of EoI was submitted also for the other activities covered by the framework programme an unofficial assessment was made also for these. The following number of EoIs was received:

Management of radioactive waste	60
Radiation protection	74
Other activities	57

Of the fairly large number of EoI only about 10-15% were addressing real NoE or IP, with a sufficiently ambitious objective. The rest were more or less projects and networks of a similar type as was used during FP5. The result of the EoI assessment has provided an important input to the preparation of the work programme and in particular to the first calls for proposals.

The evaluation of EoI demonstrates a clear interest and a positive attitude to new instrument but is also emphasis the need for further explanations and application of the new instruments in the FP6. The commission has to follow-up this exercise and to improve the information on the new instruments in particularly NoE.

Other activities

Preparation of FP6:

Much work in 2002 has been devoted to the preparation of FP6. This has included negotiations in the Council, preparation of the Work Programme and extensive information activities concerning the instruments to be used in FP6, in particular the new instruments (network of excellence and integrated projects). One important activity was the evaluations of a very specific activity to evaluate the interest in the new instruments that was launched during 2002.

Studies:

No specific studies were carried out in 2002. Preparations are underway for a mapping of the research activities in Europe on nuclear fission and radiation protection, as a follow-

up of the mapping of centres of competence that was performed in 2001. A Euro-barometer on energy has been made.

Conferences and seminars:

The unit has been involved in arranging several conferences and seminars either in the European framework or in the collaboration processes with others countries as the meeting on a joint approach EU-US-RF for epidemiological studies in population exposed to protracted doses of ionising radiation in Southern Urals.

As usual members of the unit participate actively in conferences, workshops and seminars often co-organised by the Commission in various fields of the programme.

Support to other DGs:

Continuing support is given in particular to DG TREN, RELEX, AIDCO (TACIS) and ENLARGEMENT on operational and policy issues in the nuclear fields.

4.1.3 - Impact of previous research FPs and SPs.

The self-assessment document gives a good description of the implementation of the programme and is well appreciated by the panel as a useful document. However somewhat more of self-criticism should be useful.

No impact assessment was made during the last few years. A similar evaluation as the five-year assessment of FP4 is foreseen to be performed in the next five-year assessment scheduled for 2003.

No clear indicators of social (and economic) impact are available for the FP5. Nevertheless, the social impact of the research on nuclear safety is mainly implicit through the usefulness of the electricity produced by the nuclear power plants and their continued safe operation. The problems of waste management are of different character, at least as regards very low doses, low dose rate and internal exposure. The impact of the programme in today's debate on sustainable development and public acceptance is not well explained.

Status of Operational Safety of Existing Installations

The objectives of FP5 within this key action area are to provide improved and innovative tools and methods for maintaining and improving the safety of existing installations and for achieving evolutionary improvements in their design and operation and to improve the competitiveness of Europe's nuclear industry. The targets are very important, since nuclear energy plays and will play a significant role in European electricity generation. The emphasis has been in Concerted Actions/Thematic Networks and Shared Cost Projects with an objective to support safe operation of existing nuclear power plants, and in particular in Plant Life Management and Severe Accident Management issues. This is a clear evolution since FP4, where much more emphasis was on the research of severe accident phenomenology and good results were generated in FP4 to be applied in the safety management research in later FP5. The research of evolutionary concepts includes attention on the assessment of the passive system operation and safety and on the fuel designs with higher burnups and MOX (Mixed Oxide Fuel).

There are a wide number of projects that address a wide variety of aspects. The evaluation process of the proposals includes efforts to obtain co-ordinated set of implemented projects. The Commission staff has made a good work in promoting the coordination among the projects. However, the original split seems to be too wide and the funding level of many individual projects has been quite low in comparison to the need of obtaining significant results and to promote the ERA. This will be emphasized in Section 4.2.5. There is a good participation of the newly accessed countries in some

projects. The introduction of NAS partners has been successful to many projects, even though there were some administrative delays.

Particularly, in this area the involvement of young engineers and scientists should be supported very strongly in order to maintain the full capabilities to operate nuclear power plants safely and economically far into future.

Key action of Operational Safety of Existing Installations will apply new instruments. The research will continue in a limited scope for completing the knowledge base of severe accidents aiming at improved accident management. Plant Life Management of existing Nuclear Power Plants is a key item for maintaining a large share of nuclear electricity generation within Europe. Both of these areas will also serve the utilization of nuclear energy in the new applicant countries.

Status of Nuclear Waste Management

The safe management of nuclear waste and spent fuel is a key issue in nuclear waste programmes and also recognised as such in SP Fission research. Especially the final disposal of spent fuel and long-lived radioactive waste from nuclear energy production is recognised as an area that needs R&D efforts to achieve safe long term disposal and the demonstration that safety can be achieved. In more concrete terms this means that we need to have a good understanding of technical disposal systems with recognised focus on deep geological disposal including knowledge about the natural engineered barriers as well as the modelling of the system and assessment of long term safety.

This need for understanding of barrier functions and the long term safety is crucial for the implementation of final disposal in member countries with a nuclear programme but also of great importance for neighbouring countries. Within FP5 and also in earlier programmes this has been recognised, but with time this area has become even more in focus and has been prioritised accordingly. Nuclear waste issues will also be a key area in FP6.

Also other aspects than geological and technical have been recognised as important for the implementation of final disposal namely issues related to confidence in technical solutions and in the decision process. In this area, the ethical aspects, possibilities for participation and influence in decision processes (e.g. environmental impact assessment, EIA) have been more and more emphasised.

Much of the research comprises big rather costly projects; many of them also need long term experiments both in laboratory but also in geological laboratories. New technologies such as partition and transmutation, P&T, are also in focus as methods for reducing long-term risks from waste. FP5 includes all these aspects and also FP6 will increasingly do so. In general the EU research programmes are seen as addressing important issues. A good coordination with national programmes as regards content and timing is necessary to be helpful in member states and also to contribute to ERA.

Status of Radiological protection

Radiological protection constitutes a fundamental area in regard aspects of the radiation, whether natural or man-made. It remains a key priority to reduce uncertainties in the specific understanding of the interaction of radiation and man and the behaviour of radionuclides in the environment as well as to harmonise radiation protection standards. This is a common problem for all European countries and the European added value of a scientifically sound and technically comparable position is clear. The radiation protection programme emphasises more and more research mechanisms independent from nuclear applications, and is also devoted to applications of X-rays or accelerated particles in medicine and on natural exposure of the public. The radiological protection programme is partly independent from the energy options. Unfortunately, the programme seems too far from practical question of stakeholders and decision makers concerning the real

toxicity of long lived radionuclides encountered in long term waste management. It is necessary to discuss a refocusing or transfer of a part of this programme if we expect a clear understanding from decision-makers of this part of the programme into the fission programme.

Cooperation with the United States should be more developed particularly with the US Department of Energy Low Dose Programme.

4.1.4 Other aspects proper to the specific programme

DG TREN has made proposals for new directives on nuclear safety and radioactive waste management. Connection between the development of these directives and research needs has been identified by the commission but information has not been provided as a basis for this monitoring exercise. Waste management is considered as a priority area by the commission. It is recommended that the Commission clarify if and how the new directives would influence the research programme.

Additional comments of the panel regarding the future programmes

The situation concerning nuclear power in the European Union and its bordering countries has slightly changed with the development in some countries, which have decided to stop nuclear energy at the end of the lifespan of existing power plants and in contrast to that the situation in one country, which has taken an opposite position, deciding to launch the construction of a new power plant. For nuclear waste management, we observed in 2002 significant progress in some countries. For radiation protection, the year 2002 was dominated by discussions about new recommendations by ICRP and the societal discussion concerning protection of the environment. The common aim to support these concerns is to enhance the understanding of possible effects from nuclear energy but also to give the general public more confidence in the understanding radiation exposure, either from natural situation or man-made use of ionising radiation like in medicine.

Safety and Efficiency of Future Systems

The projects in this key action area support further development of designs that could come available for the nuclear energy production in future. The largest supported efforts are in HTR's, which reflects the belief in this reactor line. These activities also improve the possibilities to participate in the worldwide efforts such as GIF and INPRO.

This is one of those Key Action areas, where further co-ordination with the fusion energy research could turn to be beneficial. There is a common interest among all the nuclear society that nuclear could remain active and interested in nuclear implementation projects, particularly now when there is a very slow intake of new orders for the nuclear power plants. The possibilities of the nuclear industry are very restricted for investments to development of such designs, most business opportunities of which are far in the future. If the nuclear industry does not survive, there will be no alternative of these innovative new energy sources to be exploited.

Nuclear Waste Management

Nuclear waste issues will remain to be an important area for many years. Funding for research related to waste management has increased in FP6 compared to FP5. An other recognition of the increasing importance of nuclear waste issues is the Commission initiative to propose new directives. The factual situation in member countries requires national as well as joint efforts in research. In addition to big and costly projects such as research related to technical issues in underground laboratories and experimental work related to partition and transmutation we can see an increasing concern for environmental issues and for societal aspects in the decision process in general. These types of concerns will influence the future research programme.

Radiation Protection

The radiation protection programme emphasises more and more research independent of nuclear applications and is partly devoted to medical applications of X-rays or accelerated particles in medicine at high dose and dose rate. In the same time the programme has developed studies on epidemiology of populations exposed to on natural exposure of the public (chronic exposure at low dose rate). However, this programme, for the radiological sciences part, seems far from energy related research like waste management. Indeed, in this field to day, the most recurrent questions concern practical questions of stakeholders and decision makers on the consequences for environment and man of release of long lived radionuclides, like I-129, Cs-135 or minor actinides. We can regret the lack of toxicological research on long-lived radionuclides with animals, which could be compared to human experience in an area with a chronic high internal exposure of radionuclides like in the Techa river area or in countries with high natural exposure into the food chain (uranium in drinking water for example). For example the classical scenario for evaluation of risk for long-term storage of nuclear waste is the contamination of man by the food chain in case of release of containment at low dose and low dose rate. No programme on this topic seems to be planned in the next FP. The so-called "radiotoxicology" in the program concerns mainly biokinetics for dosimetric purpose rather than toxicological studies. This approach is not consistent with the pharmaceutical industry, which develops, in parallel toxicological studies in animals as recommended by the European Union and fundamental research on mechanisms for drugs.

An other point to discuss is the consequences of "genetic factors predisposition" research for management of workers. If this aspect is very important for medicine and mainly for radiotherapy, the ethical consequences, as regards the viability of tests is open to debate with stakeholders and social partners considering the consequences that could concern future employment.

Another problem concerns the shape of the dose-effect relationship. Two scientific communities are to day in conflict. It should be interesting and important for the European Commission to organize a forum with, as an objective would have to reconcile the two positions by a scientific attitude, disconnected from the direct consequence for regulation. The "bystander effect" as defined by the biologist being a good illustration of this conflict.

It should be necessary to open a discussion concerning refocusing of a part of this programme if we wish to keep a good perception of the programme by decision-makers. How can we explain that "quality of X-ray imaging" is a part of nuclear fission program for these people? The answer could be to recommend transferring these activities to life sciences research programme with a potential benefit by synergy between all programmes concerning health and cancer research. The EC needs to engage with committees involved in nuclear fission programme but also in Life sciences programme and decision-makers a discussion on the validity of this proposal. This transparent discussion will be beneficial for all scientists and we cannot at this time anticipating the solution.

4.2 - MONITORING OF THE IMPLEMENTATION IN 2002.

4.2.1 - Follow up of 2001 recommendations

The follow up of recommendations expressed by the former monitoring panel is difficult to evaluate, because from the end of the last exercise (April 2002) to the beginning of the new one (November 2002) are only seven months which is not enough for the Unit to implement proposals if necessary. The panel propose to change the periodicity of the monitoring exercise.

The scientific and administrative aspects, could also be taken into account in future evaluations of the programme. One possibility could be to have a thematic monitoring e.g. one possibility could be to organise a monitoring exercise as an exercise more focussed on administrative procedures in evaluating the calls for proposals, contractual and budgetary aspects since the next monitoring exercise will start already in the autumn 2003, when rather little experience from project management is known but the very early phase is better known and possible to evaluate at least in some respects.

As regards thematic monitoring as an idea, the thematic monitoring of administrative aspects is just an example. Thematic monitoring could have quite different focus, depending on where we are in the time schedule for the programme but also depending on issues of importance that have been identified (ERA aspects, social aspects, women and young scientists in the programme etc).

The 2001 monitoring panel made six general recommendations, seven to Unit J4 management and six addressing the evaluation and monitoring methodology. The Unit gave answers. Arguments for the rejection of some proposals have been given. This Panel has no more comment.

The first recommendations were concerning the preparation of ERA by mapping competence, instruments and stakeholders. A first step in this direction was made in 2001 when a first mapping exercise was performed with the help of the programme committee. The outcome of this exercise was, however, not very clear probably due to insufficient definition of the real work to be performed. However the panel recommends using the lessons learned by this exercise for the next one. A second step is envisaged to map the research activities in the areas of nuclear safety, waste management and radiation protection in Member States and Associated States. The proposal has been preliminary discussed in the programme committee. This panel endorses the recommendation of the former one concerning transparency of this mapping exercise.

The former panel stressed the importance of dissemination of results. The new panel observes that important efforts have been made, especially to inform decision-makers and general public by the production of several leaflets. The panel notes these efforts with satisfaction and encourages the Unit to persevere in this way.

Concerning the production of handbooks of the best practices as results of the EAV in different areas of the programme, the Unit endorsed this recommendation and told the panel that the realisation of such handbooks will be carried out in the areas where such an approach will be particularly advantageous. The panel regrets that a short synthesis document concerning treatment of nuclear accident like Chernobyl is not yet published, 16 years after the Chernobyl accident and the so important investments done by EC in this field of area and the great success of some projects like RODOS, ETHOS, etc., although the programme was open for such proposals. On the other hand the panel appreciates the ongoing efforts to produce new handbooks for example in the area of nuclear safety, concerning VVER Safety, Structural integrity etc.

4.2.2 - The attainment of objectives in terms of implementation as set out in the work programmes for 2002

The objectives of the programs, in terms of implementation have been fulfilled. 2002 was the final year to select FP5 projects and the commission signed 41 contracts (+ 15 extensions of existing contracts with new partners from NAS) in 2002 for a total amount of 16 M€, the EC contribution being 11 M€.

International activities were followed-up by participating in international fora and exploration with Russian Federation and US multilateral cooperation for epidemiological studies in Southern Ural, HTR, partitioning and reactor safety.

We also note good quality in management aspects and more specific the follow-up of contracts with the utilisation of technological implementation plans (TIP), a process that could be improved.

The preparation of the implementation of FP6 in the context of ERA has been very active, with a call of expression of Interest (EoI) launched in March 2002, assessments in July 2002 and publication of results on Cordis in October 2002. The first calls for proposals were made, in time, 17 of December 2002.

4.2.3 - Transition aspects linked to the final phase of projects, in particular the follow up and closure of current contracts

Administrative management

It seems that the administrative procedures have been working well in FP5, but also that some changes would be beneficial to increase the administrative efficiency in FP6. In order to achieve that one should try to identify possible administrative problems as early as possible. It would be very helpful to have a permanent contact between the administrative staff of the commission and contractors during the whole lifetime of a project. For example the procedure for reaching a signing of contracts should be less time consuming (less than 6 months). The financial control should be simpler (already decided.) Much more of responsibility for the management and follow up will be with the coordinator in FP6. Direct contact with the contractual division could be encouraged not only when the contract is drafted and signed but also in the follow up phase.

It is important that the administrative procedures can be changed if that would increase efficiency. It is however also important that the responsibility for project management is not made unclear. The responsibility for project management must be with scientifically competent project managers in cooperation with administrators.

4.2.4 - Legacy aspects, in particular the follow up of finished contracts of successive FPs, including the Technological Implementation Plans

The panel considers two problems that have been raised concerning the relationships between EC and project leaders and project leaders and partners.

- The first issue concerns the projects leaders which don't give deliverables in due time. What is the action of EC in this case, and how will the commission try to avoid disturbances for other partners? The panel observes that the threat not to pay maybe is efficient for small institutions but less effective for large institutions that have a considerable research budget.
- The choice of a project leader by partners has different aspects, the capacity of an institute to manage the project but also the scientific leadership recognized by the other groups. If the institute, due to internal reorganization, changes the project leader the acceptance of the new leadership is the responsibility of the consortium, not the commission. But if the consortium doesn't find an agreement the commission should act.

Technical Implementation Plans (TIP) are required for cost-shared actions. TIP is a tool for ensuring that results are implemented and not only disseminated. As the name clearly indicates TIPs should be useful in several aspects. As TIPs shall be established when setting up a project TIP should be a tool for identifying already from the beginning what results are envisaged and how results will be used. The achievements in the project should be evaluated in regard to the TIP and it could also require a modification of the TIP during the project time.

TIP should be a good instrument that should be used in a more active way than now. It seems that to day the forms are too complicated and too long and in practise more regarded as an administrative tool for follow up than an active instrument for steering and controlling the project. We have understood that an evaluation of TIP as an instrument is underway in the commission and propose that TIP is more actively used, and simplified.

We would encourage a change in which the potential of TIP is better utilized.

4.2.5 - Preparation of the implementation of the specific programme under the Sixth Framework Programme (advisory structure, work programme, etc.)

The concept of ERA (European Research Area).

Most of the activities in FP6 are dedicated towards the building of the ERA. Most important are the new instruments (Networks of Excellence and Integrated Projects), which will force larger consortia to be formed thereby, developing a closer co-operation. In particular the Networks of Excellence have been designed for integration. The first calls are asking for three different NoEs, on severe accidents, waste disposal and actinide physics and chemistry.

We see the NoE concept as a very good and useful instrument. However the evaluation of EoI that was performed in the waste management and radiation protection areas demonstrated that the concept is not fully understood by the scientists. It should be recognised that further advise and discussions will be needed and also that experience from the first call should be taken into account.

One aspect of NoE is that all universities and institutions cannot be part of NoE (if the concept shall have some real meaning). The number of participants in a NoE is not defined but in the ongoing discussion 15-20 has been mentioned. We can see the problem at two levels. At the national level, probably many countries wants to be well represented in NoEs and within a country also the regions (and regional universities) may strive for participation. But some are left outside. What does that mean? Will it only be one NoE for a specific competence field (say radiochemistry) or could there be two, three or more? If we understand correctly NoE exclude the very small laboratories and subcontractors are not allowed. Further consideration of the NoE concept is needed.

Other parts of FP6 with a bearing on ERA are the activities in education and training and on research infrastructures. For both areas the objectives are to identify needs for a closer co-operation and possible means to achieve that. For example concerns about "women in science" and "youth in science" have been mentioned.

The most important step towards ERA is, however, to have a closer collaboration in the planning of the national research programmes. To reach this situation further discussions are needed in the programme committee and with the top management of the research institutes.

In interviews different opinions on the ERA concept have been expressed. Is this concept fully understood? Is ERA as a goal fully accepted? Is FP6 a good vehicle for achieving ERA?

The experience from earlier Mapping of Centres of Excellence of Research demonstrated that this concept was not easy to define. Once more we observe that a similar concept, ERA, is also difficult to define in all aspects. Even if the later concept (ERA) has been better explained the full understanding will probably have to be developed during FP6 by practical experience and evaluation.

ERA is an integral part in FP6. Collaboration with countries outside the EU (e.g. USA, Japan) will require discussion before starting new programs, but it is not clear if there will be general rules or if a discussion and decision will be taken case by case.

There seems to be some difference in understanding or attitude to ERA depending on what scientific area is concerned and also differences as regards a country's appreciation of ERA may vary. This may relate to ERA itself or to ERA in relation to national competence.

It should also be said that the concept of ERA and the new instruments and how to use them, although regarded as positively, might not yet be fully understood. This is not strange. It takes time before new concepts are understood but it should be observed and taken into account in the evaluation and research phases of the projects.

Instruments of FP6

New instruments have been made available for implementing the priority themes of FP6. The new instruments are Integrated Projects (IP) and Networks of Excellence (NoE), and they are driven by the concept of the ERA. The traditional instruments have been Specific Targeted Research Projects, Coordinated Actions and Specific Support Actions that all are still available as well.

The multitude of new definitions and terminology are not easily adapted and it brings confusion among the research community when preparing applications to FP6. This reflected in the answers to the call for EoI's in June 2002, where a clear majority of the expressions of interest were not really responding to the definitions of IP and NoE.

Activities already initiated in the spirit of ERA.

A number of activities performed during FP5 were made in the spirit of taking the first steps towards ERA. Some examples are:

- CCE-Fission report "How to Maintain Nuclear Competence in Europe"
- CCE-Fission study "Assessment of the Situation of Centres of Competence in the Fields of Nuclear Fission and Radiation Protection"
- Discussions in CCE-Fission on possibilities for an increased co-ordination between different national programmes
- An increased emphasis on networking in the later calls for proposals. Examples of such networks that have been launched are:
 - ENEN (European Nuclear Engineering Network)
 - AMES (Thematic Network on Ageing)
 - EURSAFE (Severe accident management)
 - CROP (Cluster Repository Project)
 - NET.EXEL (Thematic Network in Nuclear Waste Management)
 - ACTINET (Thematic Network in actinide sciences)
 - ADOPT (Advanced Options for Partitioning and Transmutation)
 - A decision support system on operational emergency response (DSSNET)
 - A special study on the need for new material test reactors (FEUNMARR)
 - MICANET (Michelangelo network for innovative concepts)

FP6 will be different from FP5. Some of these differences are:

- (1) The number of projects will be less (maybe from 100 to 20 when expressed in relative figures)
- (2) The administrative procedures will change giving more responsibility to the project coordinators and the consortium as such.
- (3) New instruments will be used (Networks of Excellence, Integrated Projects) but also the old ones will be available.

In FP6 there is a strong emphasis on strengthening the ERA.

Interviews of some Committees members

Discussion with some Committees members demonstrated a common view by representatives of the three member states, corresponding to the citizenship of the experts in the panel. At the interviews a questionnaire with a few questions was used, but there were open discussions and also other aspects were discussed.

The panel thinks that the opinion by different committee members was surprisingly consistent. The majority of comments are very positive to research programme and commission staff. The information given during committee meetings was appreciated and also the open attitude of the commission staff was appreciated.

The panel is pleased to note a real convergence between the answers of interviewed committees member and its own conclusions in the monitoring exercise.

- **How is ERA taken into account in your area?** This has been discussed in general terms in the committee, however not in detail. The feeling is that different opinions exist in the committee (ERA vs national competence and resources, very different aspect on ERA depending on what area is concerned, e.g. reactor safety or radiation protection). One of the difficulties seems to be in the same time for scientists to prepare their proposals for the FP6 and to integrate the new tools, perceived as political instruments. Two examples are regularly given as objectives, European Space Agency (ESA) and the European fusion programme as models for ERA. An other example concerns research activities accompanying the AIRBUS project, nobody regrets the European aspect of related research in the different member states. The experts think that the EURATOM treaty was a good basis for ERA discussions because the European dimension is necessary for nuclear activities, with development of common research infrastructures and particularly important the training of young scientists and engineers to produce a European critical mass of researchers.
- **How are TIPs developed and used in your area?** TIP seems to be an interesting tool but its implementation needs to be simplified and re-discussed. It seems natural for all that the implementation of results of research is evaluated. However this tool seems not to have been really explained to the committees. This is consistent with our own appreciation as described earlier.
- **Does your committee play an important role in the management of the programme?** The experts appreciate the more positive attitude of the commission. The discussions in the committee are quite often related to political aspects. The commission does listen to the committee and the opinions expressed by committee members. Responsible CEC representative has an open and constructive attitude. Much valuable information was given at the meetings so even if the committee maybe does not influence the programme very much (cost effectiveness could be questioned) it is well worthwhile to attend the meetings.
- **What is your committee's relation to other committees?** Information about other committees is given at meetings. But there is no direct contact between committees as such. The contacts that exist are of a personal nature.
- **What main changes do you expect in FP6?** More flexibility and freedom in the project work. New instruments (IP, NoE) could be useful but there is still quite a lot of uncertainty about how NoE will work. More emphasis on development of competence. For the nuclear field the FP6 should be a powerful accelerator of integration because the actors in this field are already well identified and are

already working in networks. They expect that, because of the number of NoEs and IPs are limited, it will be possible to have presentation of the progress of the individual projects in the Committees. An integration of national policies needed to keep open the nuclear option is also expected. However it is recognized that its implementation will be difficult due to different cultural approach.

In addition to the above opinions the experts expressed that:

- A good job is done in the Fission program and in general satisfaction was expressed with the program (FP5).
- As regards dissemination of results, FISA and "summary" reports were mentioned as good examples for the reactor area. About the same could be said for the waste management area. As regards radiation protection area it was said that there are quite many small projects that causes problems and as regards reporting there is no conference like FISA.
- For FP6 more emphasis on development competence is important e.g. training and post-graduate education.
- The new instruments (IP and NoE) especially the NoE may be very useful for big projects such as reactor safety, P&T etc but less useful for radiation protection area where many organisations are concerned. However NoE seems more difficult to implement than an IP, motivated by a precise result, because NoE is a essential tool for a long-term policy for human resources and infrastructures.

Some negative opinions point out that

- The EU projects are not always effective. Too many involved. The parties that are supposed to use the results are not always involved.
- The projects should be better managed and controlled. Maybe a steering group for the project with representatives from the commission and the major contributors of research should be set up.[However the panel recognized that it is not the role of the Commission to steer the selected projects. This is for the project management, not the programme management]

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 - GENERAL CONCLUSIONS/MAJORS TRENDS/ MAIN STRENGTHS AND WEAKNESSES ENCOUNTERED

Quality of the staff

The staff of Unit J4 of DG Research that we have met is very competent and positive to their work. We also understood that the attitude towards FP6 and the accompanying instruments (IP and NoE) is positive. The self-assessment report was of good quality. We had good and open discussions, meaning that everyone expressed his/her view without any real hesitation. This does not mean that everything is without problems and criticism. Even if the staff is well qualified they may encounter problems in their work.

Effort to prepare the FP6.

Much of the work in 2002 has been devoted to the preparations for FP6. One of these preparations was the Expressions of Interest, an opportunity for organisations to give proposals for possible NoEs and IPs. The evaluation of this gave indications of a big interest but also that the understanding of the new instruments, especially NoE, should be improved. Other preparations were discussions in consultative bodies. The 1st call for proposals was issued the 17th of December 2002, in agreement with the agenda.

Covering of achievement of objectives of FP 5

The objectives of the programs, in terms of implementation have been fulfilled. 2002 was the final year to select FP5 projects and the commission selected and signed 45 contracts for a total amount of 16 M€, the EC contribution being of 11 M€.

We also note a good quality of management aspects including the follow-up of contracts using the technological implementation plans (TIP), which, however, could be improved.

Dissemination of results

One aspect that very clearly is a question that needs further efforts is the dissemination of results. Maybe the dissemination to the scientific community works rather well (even this could be questioned) but the information of decision makers and the general public needs to be improved. We know that some efforts have been made and with some success but more has to be done. This will be even more important as we emphasise the ERA in FP6.

For example the recommendations of the last panel to use the help of scientific societies for information of the entire community involved in the programme has been recently followed by a action of the Unit which has made efforts to inform the scientific society about the new call for proposals. This action should be encouraged and should continue.

We appreciate the individual initiative of a scientific manager to produce a press release in collaboration with coordinators when a result seems new and interesting for the media. This is a good imitative. But this kind of communication needs to be carefully judged as it could affect the balance between fundamental and applied parts of the program. Applied research, like basic toxicology of radionuclides, remains necessary for the understanding of risks in the nuclear industry and especially for waste management.

The panel endorses a former recommendation for creating a editorial board for dissemination of results. We can take as example the special edition of RTD info publication "Talking science" which is clearly written by synergy of scientists and journalists. This document could be largely distributed in universities, institutions, etc.. for the benefit of ERA.

Uncertainties about how to use the new instruments

The new instruments (NoE and IP) seem to be understood and accepted in principle at the level of advisory committees. But we also think that the evaluation of the Expressions of Interest demonstrates that there are uncertainties about when and how to use the new instruments in addition to the earlier ones. up will be needed. The evaluation of EoI demonstrates a clear interest and a positive attitude to new instrument but is also emphasis the need for further explanations and application of the new instruments in the FP6. The commission has to follow-up this exercise and to improve the information on the new instruments in particularly NoE.

Synergies inside commission

There seems to be no real interaction between the two Euratom Key Actions i.e. between fission and fusion programmes. This is quite surprising, since in many of the areas there are same engineers and scientists working on the both programmes using the same tools. This is the case in areas such as radioactive waste management, radiation protection as well as in reactor materials research as well as in plant safety studies. Furthermore, there are common needs in both fusion and fission concerning the availability of the nuclear industry to design and build installations from the big experimental devices up to the prototypic power plants. In the panel opinion, it is necessary to study the possible synergy of these two programmes. The experience of the fusion programme, being already featured as an existing ERA, should be exploited in the fission programme

DG TREN has prepared proposals for new directives on nuclear safety and radioactive waste management. Connection between the development of these directives and research has been identified by the commission but information has not been provided as a basis for the monitoring exercise. For example waste management was considered as

a priority by the commission. It is recommended that the Commission clarifies if and how the new directives would influence the research programme.

Keeping the expertise

In the nuclear area it is obviously a problem in many countries to attract young people to education and research in the field. The mere fact that we have nuclear facilities in operation and will need to have so for many years requires that young people be engaged. As long as decisions on if and when to phase out nuclear energy is still lacking and the nuclear option has advantages regards avoiding climate change due to restricting the releases of carbon dioxide then competence in the nuclear field is a prerequisite for safe operation of nuclear facilities and for safe final disposal of the nuclear waste. The information given in Annex 3, table 3, showing the attribution of only 3 Marie Curie grants is matter of discussion. Information about fellowship in Euratom area in parallel with Marie Curie fellowship should be communicated to young people at universities and other educational and research centres.

5.2 - RECOMMENDATIONS (A LIMITED NUMBER OF KEY RECOMMENDATIONS):

Recommendations specific to the SP programme

The panel considers that the general recommendations given below (Recommendations of General Significance) also should be applied for the SP Fission Programme.

The panel considers that general recommendations applied also to specific programs and we will give in this part of the report only recommendations applicable to fission programme.

(1) Implementation of results still needs more attention and efforts. In general the dissemination as regards the scientific community seems satisfactory but more should be done regarding the dissemination of results to decision makers and the general public. The panel endorse a former recommendation for creating a scientific editorial board for dissemination of results. It strongly recommends also continuing the committed efforts.

(2) Discussion of ethical problems of radiological sciences programme are essential. Ethical aspects are also relevant in the waste management area mainly because of the very long time periods concerned in final disposal (future generations may be affected) but also in relation to the possibility for effects beyond national borders.

(3) Balance between applied and fundamental research for the radiological science part of radiation protection program has to be evaluated. If the program turns to more fundamental aspect, it is clear that its position in fission program should be discussed.

(4) The commission has to reinforce cooperation and possible synergies between Euratom fission and fusion programmes.

(5) Reinforce/or establish more concerted programme with other countries such as USA, Japan, Russian Federation and others countries.

(6) In the nuclear area it is obviously a problem in many countries to attract young people to education and research in the field. The mere fact that we have nuclear facilities in operation and will need to have so for many years requires that young people be engaged. And the panel recommends to promote a European thought with member states on education and training in science and more especially for this programme in nuclear science. This could be the future key of high level of expertise in this field.

(7) It is recommended that the Commission defined the research efforts needed to support of the development of the directives in the nearest future.

Recommendations Of General Significance For The Whole FP/ERA

The panel considers that the general recommendations given below also should be applied for the SP Fission Programme.

(1) The panel thinks that the time between the end of a monitoring and the beginning of the next one is too short for a real implementation of the recommendations. The panel recommends; i) an exercise in a year 0 (November to April), ii) following up of recommendations during a meeting of the members of this panel with the staff the next year (April-May Year +1) for presentation of the implementation (or not) of the recommendations and; iii) to launch a new exercise with a new panel the following year (+2). This could lead to a full monitoring exercise each two years. The panel also recommends to have the possibility of specific theme monitoring.

(2) The new instruments (IP and NoE) seem to be generally supported and seen as useful. However there is a need for help and assistance in how to implement them in an effective way.

(3) Use TIP actively as a tool for planning and follow up of result implementation but define the process in a more useful way, and develop more useful forms.

(4) Involvement of administrative people both in direct contacts with national research organisations in the contractual phase but also in progress meetings etc in FP6.

(5) Introducing new terminology and definitions brings some confusion among the research community. In future, the new terminology should be restricted to only those that are really essential.

(6) A process is needed by which new member states is given support (when needed) to be able to fully participate in the research programme.

5.3. ACKNOWLEDGMENTS

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6 ANNEXES

6.1 - BUDGET FOR FPs AND SPs + CRITERIA + RELEVANT ARTICLES FROM FP DECISIONS

The main outcome of the evaluations and negotiations is presented in the following table:

Table 1. Overviews of proposals and contracts concluded in 2002

		MCFI ¹ 13.06.01	AM ¹ 24.09.01	MCFI 09/01/02	4 th call 21/ 01/02	NAS ² 21/01/02	AM 25/03/02	Open 03/07/02	Total ³
1.	Number of eligible proposal received:	5	10	5	29	24	11	14	98 ³
2.	Number of proposals recommended for funding:	3	8	5	12	15 ²	9	4	56 ³
3.	Number of contracts signed to date	3	8	5	12	NA ²	9	4	41 ²
4.	Financial contribution requested	341.572	401.761	701.472	26.078.373	1.423.781	606.642	14.921.226	44.474.827 ³
5.	Financial contribution planned	217.200	220.418	701.472	5.963.934	902.639	427.160	2.697.488	11.130.311
6.	Financial contribution committed (signed contracts)	217.200	220.418	701.472	5.963.934	902.639	427.160	2.697.488	11.130.311
7. Total funding of projects (EC + contractor's contributions) of received proposals and signed contracts									
a	Received proposals	341.572	654.744	701.472	33.923.823	2.437.986	1.123.391	21.811.899	60.994.887 ³
b	Signed contracts	217.200	239.733	701.472	7.981.542	1.510.161	884.976	4.401.728	15.936.812

¹ Proposals received and selected in 2001 but financed in 2002.

² No contracts but 15 extensions of existing projects to NAS partners.

³ Since the reception and the selection of the 2 calls from 2001 took place in 2001 while the funding of contracts took place in 2002, data from both 2001 and 2002 calls have been also taken into account in this table.

Table 2: Basic Statistics (situation January 2003)

		MCFI ¹ 13.06.01	AM ¹ 24.09.01	MCFI 09/01/02	4 th call 21/ 01/02	NAS ² 21/01/02	AM 25/03/02	Open 03/07/02	Total ³
1.	Time to contract (from deadline to EC signature) (first and last contract in months)	First: 8 Last: 9	5 6	6 11	7 11	7 11	5 6	5	
2.	Number of eligible proposal received:	5	10	5	29	24	11	14	98 ³
	KEY ACTION	4	6	2	5	21	9	-	47 ³
	GENERIC ACTIVITIES	1	4	3	16	1	2	14	41 ³
	RESEARCH INFRASTRUCTURES	-	-	-	8	2	-	-	10 ³
3.	Number of proposals recommended for funding:	3	8	5	12	15 ²	9	4	56 ³
	KEY ACTION	3	5	2	2	13	7	-	32 ³
	GENERIC ACTIVITIES	-	3	3	5	1	2	4	18 ³
	RESEARCH INFRASTRUCTURES	-	-	-	5	1	-	-	6 ³
4.	Success rate	60%	80%	100%	41%	75%	82%	29%	58%
5.	Number of contracts signed to date	3	8	5	12	NA ²	9	4	41 ²
6a.	Financial contribution requested	341.572	401.761	701.472	26.078.373	1.423.781	606.642	14.921.226	44.474.827 ³
	KEY ACTION	217.200	231.329	287.450	4.269.529	1.290.781	539.142	-	6.835.431 ³
	GENERIC ACTIVITIES	124.372	170.432	414.022	16.737.076	94.500	67.500	14.921.226	32.529.128 ³
	RESEARCH INFRASTRUCTURES	-	-	-	5.071.768	38.500	-	-	5.110.268 ³
6b.	Financial contribution planned	217.200	220.418	701.472	5.963.934	902.639	427.160	2.697.488	11.130.311
6c.	Financial contribution committed (signed contracts)	217.200	220.418	701.472	5.963.934	902.639	427.160	2.697.488	11.130.311
	KEY ACTION	217.200	159.618	287.450	579.792	789.139	359.660	-	2.392.859
	GENERIC ACTIVITIES	-	60.800	414.022	3.059.115	75.000	67.500	2.697.488	6.373.925
	RESEARCH INFRASTRUCTURES	-	-	-	2.325.027	38.500	-	-	2.363.527
7. Total funding of projects (EC + contractor's contributions) of received proposals and signed contracts									
a	Received proposals	341.572	654.744	701.472	33.923.823	2.437.986	1.123.391	21.811.899	60.994.887 ³
	KEY ACTION	217.200	256.329	287.450	6.168.433	2.210.486	1.055.891	-	10.195.789 ³
	GENERIC ACTIVITIES	124.372	398.415	414.022	21.669.058	189.000	67.500	21.811.899	44.674.266 ³
	RESEARCH INFRASTRUCTURES	-	-	-	6.086.332	38.500	-	-	6.124.832 ³
b	Signed contracts	217.200	239.733	701.472	7.981.542	1.510.161	884.976	4.401.728	15.936.812
	KEY ACTION	217.200	178.933	287.450	919.146	1.321.661	810.226	-	3.734.616
	GENERIC ACTIVITIES	-	60.800	414.022	4.614.931	150.000	74.750	4.401.728	9.716.231
	RESEARCH INFRASTRUCTURES	-	-	-	2.447.465	38.500	-	-	2.485.965

¹ Proposals received and selected in 2001 but financed in 2002.

² No contracts but 15 extensions of existing projects to NAS partners.

³ Since the reception and the selection of the 2 calls from 2001 took place in 2001 while the funding of contracts took place in 2002, data from both 2001 and 2002 calls have been also taken into account in this table.

Table 3: Number of participations in projects selected for funding per country

		MCFI ¹ 13.06.01	AM ¹ 24.09.01	MCFI 09/01/02	4 th call 21/ 01/02	NAS 21/01/02	AM 25/03/02	Open 03/07/02	Total
EC COUNTRIES	Austria		1	1			1		3
	Belgium		1		6			1	8
	Denmark				1			1	2
	Finland				2		1	1	4
	France		1	1	10		1	5	18
	Germany		2		12		5	6	25
	Greece		2					1	3
	Italy				2			2	4
	Ireland		1						1
	Portugal								
	Spain	1			4			4	9
	Sweden				4		1		5
	The Netherlands				6		3	1	10
United Kingdom		3	2	11			3	19	
INO					1				1
ASSOCIATED COUNTRIES	Bulgaria				3	8			11
	Czech Republic	1			2	8	1		12
	Hungary					6			6
	Latvia					1			1
	Romania					2			2
	Slovakia	1				5	1		7
	Slovenia					2			2
OTHER	Belarus							1	1
	Lithuania								
	Norway								
	Poland								
	Russia			1	4				5
	Switzerland				2				2
	Ukraine						2	1	3
	United States								

¹ Proposals received and selected in 2001 but financed in 2002.

6.2 – ABBREVIATIONS

AC	Applicant Countries associated to the Euratom program
ACTINET	Network of Excellence in actinides sciences
ADOPT	Advanced options for partitioning and transmutation
AGE	Advisory Group for Energy
AIDCO	Europe Aide (a part of RELEX family)
AM	Accompanying Measures
AMES	Thematic network on ageing
CCE-Fission	Consultative Committee in Energy
CORDIS	Community Research and Development Information System
CREST	Scientific and Technical Research Committee
CROP	Cluster repository Project
DG	Directorate General
EAD	European added value
EAG	External Advisory Group on Energy
EAV	European Added Value
EC	European Commission
EIA	Environmental Impact Assessment
ENEN	European Nuclear Engineering Network
Eoi	Expression of Interest
ERA	European Research Area
EU	European Union
EULEP	European Late Effect Project
EURADOS	European Radiation Dosimetry Group
EURSAFE	FP5 project on Severe accident management
FASSETT	Framework for Assessment of Environmental impact
FEUNMARR	FP5 project for studying need of a material testing reactor
FP	Framework Programme
FPMP	Framework Programme Monitoring Panel
FIS	EURATOM (Fission Programme)
FISA	Fission Safety
GIF	Generation IV International Forum
HLLLW	High-Level Long-Lived Waste
IAEA	International Atomic Energy Agency
ICRP	International Commission on Radiological Protection
INO	International Organisation
INPRO	International Project on Innovative Nuclear reactors and Fuel Cycles, IAEA programme.
INTAS	International Association for Promotion of Co-operation with Scientists from the Independent States of the former Soviet Union
IP	Integrated Project
ISTC	International Scientific and Technical Centre
JRC	Joint Research Centre
LWR	Light water reactor
MCFI	Marie Curie Fellowship Individual
NAS	Newly Associated States
NET.EXEL	Network of excellence in Nuclear waste management
NoE	Network of Excellence
OECD/NEA	Organisation for Economic Cooperation Development/Nuclear Energy Agency
PHARE	Poland and Hungary Assistance for the Reconstruction of the Economy
RELEX	DG RELEX, External relations
RF	Russian Federation

RTD	Research and Technological Development
RODOS	Real-time, On-line, DecisiOn Support
SP	Specific Programme
SME	Small and Medium sized Enterprises
SO	Scientific Officer
STC	Euratom Scientific and Technical Committee
TACIS	Technical Assistance to the Commonwealth of Independent States
TIP	Technological Implementation Plan
TREN	Transport and Energy
US	United States of America
VVER	Russian abbreviation for Water Moderated Water Cooled Energy Reactor
WP	Work Programme

6.3 - INFORMATION PROVIDED TO THE EXPERTS BY THE PROGRAMME MANAGEMENT

6.3.1. Document for decisions makers and general public

- Leaflet RADIOACTIVE WASTE MANAGEMENT, for safe and sustainable use of nuclear energy
- Leaflet REACTOR SAFETY Towards more safety and competitiveness in nuclear energy
- Leaflet RADIATION PROTECTION Safeguarding of European Citizens
- Leaflet INNOVATIVE CONCEPTS, Towards cleaner, safer and competitive generation of nuclear energy
- Decision support for emergency management and environmental restoration, ISBN 92-894-1744-7
- Understanding the effects of radiation on health EUR 19959
- Optimisation of protection in the medical uses of radiation 19793
- Nuclear fission and radiation protection projects selected for funding 1999-2001, January 2002, EUR 1995

6.3.2. Documents for monitoring exercise only

- 2002 Monitoring of the implementation of the European Research Area (ERA) and of community research framework programme and specific programmes, Broad Guidelines, 5 November 2002.
- Monitoring 2002, Provision of documentation to monitoring expert; Planning, programming and evaluation unit. Basic steps to access and use the Commission Extranet "CIRCA"
- CIRCA Content, 42 documents Plus index
 - Five year assessment report (1995-1999).pdf
 - O1.Qol.doc
 - 02.INFSO.doc
 - 03.Growth.doc
 - 04a.NNE.doc
 - 05a.Fusion.doc
 - 05b.Fission.doc
 - 06.INCO.doc
 - 07.Inno SMEs.doc
 - 08.IHP.doc
 - 28-Rapport annuel 2000.doc
 - 5-Monitoring report 2000.doc
 - Env (Monit.Rep.2000).doc
 - 7-Revised 2001 Monitoring System_transl.doc
 - 27-Rapport annuel 1999.doc
 - 21-Call for applications.pdf
 - EN.doc
 - FP FYA.pdf
 - 020516 Final.doc
 - Competitive and sustainable Growth 2001.pdf
 - Confirming the International Role of Community Research 2001.pdf
 - Environment and Sustainable Development 2001.pdf
 - Fission 2001.pdf
 - Non-Nuclear Energy 2001-pdf

Fusion 2001.pdf
Improving the Human research Potential and the Socio-economic Knowledge Base 2001.pdf
User-Friendly Information Society (IST) 2001.pdf
Promotion of Innovation and Encouragement of participation of SMEs 2001.pdf
Quality of life and Management of Living resource 2001.pdf
ERA monitoring report 2001
FPMonPanelReport.doc
01.Monit99-Quality of Life
03.Monit99-Growth.doc
04.Monit99-Environment.doc
05.Monit99-NNE.doc
06.Monit99INCO.doc
07.Monit99-SMEs.doc
08.Monit99-IHP.doc
02.Monit99-INFISO.doc
02.Monit99INFISO Corein
Broad Guidelines MON 02 6 Nov Chr.doc
Composition of MON 200MON 02 panel Expert Groups.doc

- Composition of 2002 monitoring panel and expert groups
- Flowchart of the DG Research
- 1999 External monitoring report on the specific programme for research activities in the field of "Nuclear energy-fission" March 2000.
- 2000 External monitoring report on the specific programme for research activities in the field of "Nuclear energy-fission" May 2001.
- 2001 monitoring report on the specific programme for research and technological development in the field of nuclear fission and radiation protection, April 2002
- JOCE du 16.10.2001 (2001/C 290/06) Quatrième appel à propositions pour des actions de recherche et d'enseignement dans le cadre du programme spécifique de recherche et d'enseignement (Euratom) dans le domaine de l'énergie nucléaire (1998-2002)
Action clé 2: fission nucléaire
- JOCE du 16.10.2001 (2001/C 290/07)
- JOCE du 16.10.2001 (2001/C 290/08)
- JOCE du 03.04.2002 (2002/C 79/16)
- JOCE du 1.2.1999 (1999/64/Euratom) Council decision of 22 December 1998
- JOCE du 12.3..1999 (1999/64/Euratom) Council decision of 25 January 1999
- Nuclear fission and radiation programme, Monitoring 2001, Summary of the follow-up given to the recommendations made by the 2001 monitoring panel
- Table of contracts (to be more precise)
- Monitoring 2001 Nuclear Energy fission and radiation protection, presentation scheme (15/11/2002)
- Monitoring – Self-assessment of programme implementation 2002 fission
10 fiches and 3 annexes
- Research and training programme in the field of nuclear energy (1998to 2002, Work programme, revision August 2001

- ☑ Acronyms Glossary for the Monitoring Experts –Fission Programme
- ☑ 2001 Framework programme monitoring panel recommendations –Commission service's response.
- ☑ Report on the analysis of expressions of interest 2002. Priority thematic area 2.2: Management of radioactive waste. CCE-Fission-02/3-17.2
- ☑ Report on the analysis of expressions of interest 2002. Priority thematic area 2.3: Radiation protection. CCE-Fission-02/3-17.3
- ☑ <http://etip.cordis.lu>
- ☑ State of the art report on passive autocatalytic recombiners, EC Project PARSOAR, handbook guide, march 2001, to be published
- ☑ CTD best practices guidelines for CFD code validation for reactor-safety applications, ECORA, February 2002, to be published.
- ☑ VOCALIST, First issue of "Handbook for best practice of constraint based structural integrity procedures", Project VOCALIST , validation of constraint based assessment methodology in structural integrity, October 2002, to be published.
- ☑ Concerted Utility review of VVER-440 Safety research needs, VERSAFE, October 2002, to be published

6.4 – OTHER: STATUS OF COMMISSION'S ACTIONS FOLLOWING THE RECOMMENDATIONS FROM THE MONITORING REPORTS 1999, 2000 AND 2001
(Only those conclusions and recommendations that require action are listed)

1999

	Conclusions and Recommendations	Status 20/01/03
Progress and achievements		
7	There is a need for a strategic review of the technical achievements of FP4.	A first review of the achievements of FP4 and the preliminary outcome of the first calls of FP5 was made in early March 2000, as a basis for the rewriting of the work programme for the remaining calls of FP5. In this process the advice of the EAG was sought and utilised. Further review was made in view of the preparation of Framework programme 6.
Programme implementation		
3	The new system of advisory committees, including the EAGs, is welcomed. It is vital that these committees are used effectively and their opinions sought in a timely fashion	The experiences from FP5 showed a certain overlap between the activities of the EAG Fission, STC and CCE-Fission. As a consequence in FP6, while keeping STC and CCE-Fission only one advisory group (AGE) has been set up for the whole energy programme. This group shall give wider advice on long-term energy research policy.
4	The "soft" objectives of FP5 pose something of a problem to established technical research areas. Although a comprehensive guidance document for evaluators has been written and Commission staff gave a good presentation, evaluators are still inconsistent on non-technical issues.	Improved guidance on the soft objectives was given during FP5. They were, however, all the time difficult to use as criteria to distinguish between projects. The objectives set in FP6 are quite different with scientific content, quality of consortium and degree of integration being the more important.
5	It is essential that evaluations continue to give technical quality the highest priority, not withstanding the demands of non-technical criteria.	See comment above
6	A more proactive line needs to be taken by commission staff to ensure that project proposals in areas deemed to be of strategic importance to the FP5 are elicited. In particular in support to infrastructure and networking.	This was done during the remainder of FP5 and in the preparation for the European Research Area. At the end a fair share of the funding was devoted to infrastructures and in particular networking.
7	More consideration should be given to the need for the research community to understand the objectives and structures of the programme.	Taken into consideration in the later calls for FP5. The issue is again of importance for the new Framework programme and substantial information activities are undertaken to inform.
9	Consideration needs to be given to gaining European Added value by focusing some important research	Intensified activities have been undertaken in the preparation for FP6 and will continue.

	areas into European Centres of Excellence	
10	The question of education and training has not been adequately dealt with and a vision for the objectives and purpose of an EC funded programme need to be established.	A first step in this direction was undertaken together with the programme committee, who produced the study "How to Maintain Nuclear Competence in Europe". Education and Training has also been made an important topic in FP6. Further work is, however, still necessary.

2000

	Recommendation	Status 20/01/03
1	Develop and provide for monitoring quantitative indicators showing the increment in the yearly achievements of the programme.	No specific indicators have been developed for the nuclear energy programme.
2	Continue to clarify the objectives of the programme to stimulate and focus proposals. Give special attention to the rejected proposals to increase transparency.	This was done in FP5. Improvements were introduced in the evaluation process to further encourage the evaluators to extensively comment on the proposals liable to be rejected. Also a quick response system was introduced to inform the proposers of the results of the evaluation within a few weeks after the evaluation.
3	Concentrate on the most important aspects of the selection process and minimise inconvenience due to uncertainty in the allocation of resources and the schedule of starting contracts through a clear schedule for negotiation.	Some improvements were introduced in FP5. In FP6 and indicative time schedule for the evaluations and contract negotiations is included in the calls.
4	Assessment of mid term reports of on going research by external experts is recommended.	This proposal was not adopted due to the administrative difficulties involved, as the mid-term reviews are not happening at the same time for all projects.
5	Write non-technical short reports on FP results to improve feedback with decision makers and public. Stimulate the co-ordinators of the projects to give publicity to the results.	A series of non-technical short reports or leaflets have been prepared and some more are in the pipeline. More emphasis is put on publicity, not least locally, about the ongoing research.
6	Facilitate participation of accessing countries to the programmes.	Special actions were introduced in FP5, e.g. a specific call to allow organisations from the accessing countries to participate in ongoing projects. Targeted information days have been held.
7	Keep touch with other international organisations in the view of long-term projects and limited resources.	The Commission services are actively engaged in the work of other international organisations, e.g. IAEA, OECD/NEA and ICRP. Possibilities of co-operation are continuously evaluated.

		The rules of participation of the Framework Programme provide the possibility for the participation of international organisations, if in the interest of the Community.
8	Prepare carefully the possible and recommendable shift from project management to programme management.	This shift is now starting, with the start of FP6.
9	Special attention should be given to Radiation Protection that has been managed formally in two areas; as apart of Key-Action area and as Fundamental Radiological Sciences. Panel considers the situation artificial and proposes that radiation protection related subjects are in FP6 programme under a single title.	Radiation Protection is one priority in FP6.

2001

	Recommendation	Status 20/01/03
General recommendations for the whole ERA/FP		
	<p>An important step before ERA became a reality in Nuclear Fission and Radiation Protection is to map the situation, in both the Members states and in the Applicant Countries (AC) that should comprise:</p> <ul style="list-style-type: none"> - Mapping of competencies, even outside the nuclear fission community where expertise to solve some problems exist, - Mapping of large instruments for nuclear research, - Mapping of stakeholders. <p>The commission should launch as soon as possible as part of the 6th FP.</p>	<p>A first step in this direction was made in 2001 when a first mapping exercise was performed with the help of the programme committee. The outcome of this exercise was, however, not very clear.</p> <p>A possible second step could be to map the research activities in the areas of nuclear fission and radiation protection in the Member States and the Associated States. Again the programme committee should be the right forum for such an exercise. As this is a large task it should preferably be carried out in two steps, one overview study followed by a more detailed study. The proposal has been preliminary discussed in the programme committee.</p>
	<p>Such mappings should show, where in the Nuclear science, the expertise may be lost and where in opposite the expertise is being maintained or increased. Specific actions of training and education must be urgently promoted in 6th FP to restore the expertise endangered.</p>	<p>The above-mentioned study shall indicate / confirm the need for the definition and, if applicable, the implementation of specific actions of training and education". Specific actions for education and training are included in the first call of FP6.</p>

	<p>Progress to ERA requires increasing networking that will facilitate organisation of research in Programmes. Transition from a Project structure to a Programme structure implies an increase in 6th FP projects clustering. Next calls for proposal must clearly identify this need.</p>	<p>FP6 has as one of its objectives to facilitate organisation and integration of research in Europe. The tools to accomplish this are the new instruments, Networks of excellence and Integrated projects.</p> <p>In the first call for proposals it is intended that about 60 – 80 % of the funding shall be utilised for the new instruments.</p>
	<p>The mechanisms for the creation, financing and efficient functioning of future ERA tools, like networking of "Centre of Competence", "Centre of Excellence" or "Virtual Centre" must be defined as soon as possible.</p>	<p>This was done before the launch of FP6. Further explanation will still be needed.</p>
	<p>Due to very different nuclear development in the Member states and Accessing States, a common view on safety should have a high level of priority. Regulators must be more involved in some projects or in sharing results.</p>	<p>A directive has been proposed for common European safety standards. DG Research is encouraging an increased participation of the regulators in the new projects.</p>
	<p>To make visible the EAV in different areas of the Programme, handbooks of the best practices and of the best tools to use should be issued in certain areas. This will help to improve safety based on common basis.</p>	<p>The Commission services appreciate the usefulness of "handbooks" of best practices and tools in particular in areas that are mature from a research point of view. It will be an effective tool for the dissemination of the results of the research. It is also an important part of the total knowledge management, that is an important component of the new instruments. The realisation of such handbooks will be carried out in the areas where such an approach will be particularly advantageous, as a part of the project work.</p>

Specific recommendations to Unit J 4 for management		
	<p>Maintain the high quality of management</p>	<p>This is our ambition. The high quality of management can, however, only be assured through a high quality of knowledgeable staff. This is a key issue for the replacement of some staff shortly.</p>
	<p>Launch actions to fulfil the general above recommendations to make ERA a reality.</p>	<p>See earlier comments</p>
	<p>Prepare the Nuclear community to ERA by dissemination of specific documents</p>	<p>See earlier comments</p>

	In calls for 6 th FP make clear the new challenges to be fulfilled to progress to ERA and try to explain it in simple terms	See earlier comments
	Give clear definitions of the different instruments to bring people to work together.	See earlier comments
	Set up an Editorial Committee for dissemination of results	This is an interesting idea that will be investigated. It should also been seen in the context of a publishing policy for the unit and the directorate. Still to be done.
	Try to connect fellowships attribution to project	In the new instruments the training component will be important. In this context the modalities for connecting the fellowships to projects will be investigated.
	Give to the Panel a glossary explaining acronyms and new terms and carefully check that definitions are clearly elucidated.	Such a glossary was prepared

PART B:

**Responses of the Programme Management
to the
external Monitoring Report**

RESPONSES BY COMMISSION SERVICES TO THE 2002 NUCLEAR FISSION AND RADIATION PROTECTION MONITORING REPORT

Experts Recommendations 2002	Commission Services' Responses	Services' Commitments (if any)	Deadline
1. Recommendations specific to the SP programme			
<p>Implementation of results still needs more attention and efforts. In general the dissemination as regards the scientific community seems satisfactory but more should be done regarding the dissemination of results to decision makers and the general public. The panel endorse a former recommendation for creating a scientific editorial board for dissemination of results. It strongly recommends also continuing the committed efforts.</p>	<p>An information and communication policy is being developed for Directorate J. This will include a policy concerning the publication of reports and the preparation of other information material, like brochures etc. This topic will be discussed with the Programme Committee. In this context, the concept of a scientific editorial board will also be discussed.</p>	<p>Development of a communication policy</p>	<p>Beginning 2004</p>
<p>Discussion of ethical problems of radiological sciences programme are essential. Ethical aspects are also relevant in the waste management area mainly because of the very long time periods concerned in final disposal (future generations may be affected) but also in relation to the possibility for effects beyond national borders.</p>	<p>The recommendation concerns two different types of ethical questions. The discussions on the ethical issues in the radiological science programme primarily concern the ethics of certain investigations etc. Another type of ethical issues concerns the ethics of an activity or a regulation, and the impact this will have on present and future generations. This is applicable to both radiation protection and radioactive waste management. These issues are mainly discussed in the science and society programme, but could also be included in the two sub-areas of the Euratom programme, dealing with governance in connection with geological disposal and risk management in the radiation protection programme.</p>	<p>Discussion of ethical aspects at relevant levels (Programme Committee, Evaluation, management by Scientific Officers)</p>	<p>2004</p>

RESPONSES BY COMMISSION SERVICES TO THE 2002 NUCLEAR FISSION AND RADIATION PROTECTION MONITORING REPORT

Experts Recommendations 2002	Commission Services' Responses	Services' Commitments (if any)	Deadline
<p>Balance between applied and fundamental research for the radiological science part of radiation protection program has to be evaluated. If the program turns to more fundamental aspect, it is clear that its position in fission program should be discussed.</p>	<p>The balance between applied and fundamental research for the radiological sciences in the Sixth Framework Programme is largely set by the specific programme adopted by the Council and this will continue to the case for future framework programmes. Should the balance shift substantially in future towards more fundamental research consideration would be given to where it would be best located within the Framework Programme.</p>	<p>Reflection on the balance between fundamental and applied research</p>	<p>For further consideration in the context of the preparation of the next Framework Programme</p>
<p>The Commission has to reinforce co-operation and possible synergies between Euratom fission and fusion programmes.</p>	<p>An exploratory study of the possible synergies and cooperation possibilities between the fission and the fusion programme will be completed within the Directorate before the end of 2003.</p>	<p>Internal study</p>	<p>End 2003</p>
<p>Reinforce/or establish more concerted programme with other countries such as USA, Japan, Russian Federation and others countries.</p>	<p>The collaboration with third countries is increasing. For USA, Russian Federation, Canada and Argentina cooperation agreements exist for the Euratom area. Similar agreements are being negotiated for Japan and China. During the next year increased efforts will be devoted to collaboration within these agreements. The Framework Programme also provides the possibility for collaboration with third countries on a project by project basis. DG Research is encouraging such collaboration.</p>	<p>Follow up of signed agreements and finalisation of new ones</p>	<p>2003-2004</p>

RESPONSES BY COMMISSION SERVICES TO THE 2002 NUCLEAR FISSION AND RADIATION PROTECTION MONITORING REPORT

Experts Recommendations 2002	Commission Services' Responses	Services' Commitments (if any)	Deadline
<p>In the nuclear area it is obviously a problem in many countries to attract young people to education and research in the field. The mere fact that we have nuclear facilities in operation and will need to have so for many years requires that young people be engaged. And the panel recommends to promote a European thought with member states on education and training in science and more especially for this programme in nuclear science. This could be the future key of high level of expertise in this field.</p>	<p>Education and training is given a high profile in Euratom Sixth Framework Programme. Several topics were open in the first call for proposals, in particular responding to previously identified needs in some areas and determining needs in others. Future calls will respond to identified needs.</p> <p>Attracting young people for careers in science in general is taken up as a priority in the Science and Society component of the specific programme on Structuring the European Research Area.</p>	<p>Future calls</p>	<p>2004</p>
<p>It is recommended that the Commission defined the research efforts needed to support of the development of the Directives in the nearest future</p>	<p>DG TREN is being consulted to ensure that any immediate needs are addressed in the next call for proposals, foreseen in late 2003. Subsequent calls for proposals and/or the content of any future Framework Programme will be responsive to the needs of the Directives as and when they are agreed.</p>	<p>Regular consultation of DG TREN to ensure that research needs in support of the Directives are adequately identified.</p>	<p>2003-2004</p>

RESPONSES BY COMMISSION SERVICES TO THE 2002 NUCLEAR FISSION AND RADIATION PROTECTION MONITORING REPORT

Experts Recommendations 2002	Commission Services' Responses	Services' Commitments (if any)	Deadline
2. Recommendations of General Significance for the Whole Framework Programme/European Research Area			
<i>The panel considers that the general recommendations given below also should be applied for the SP Fission Programme</i>	These recommendations are applicable to the whole Framework Programme. Although they are also applicable to the Euratom Programme, no Euratom specific comments are considered.		
The panel thinks that the time between the end of a monitoring and the beginning of the next one is too short for a real implementation of the recommendations. The panel recommends; i) an exercise in a year 0 (November to April), ii) following up of recommendations during a meeting of the members of this panel with the staff the next year (April-May Year +1) for presentation of the implementation (or not) of the recommendations and; iii) to launch a new exercise with a new panel the following year (+2). This could lead to a full monitoring exercise each two years. The panel also recommends to have the possibility of specific theme monitoring.	The Commission fully shares the views of the panel and intends to reconfigure the monitoring system in line with the principle mentioned (see reply to recommendation 10 of the Framework Programme monitoring).	Set up of a reconfigured monitoring system	End of 2003
The new instruments (IP and NoE) seem to be generally supported and seen as useful. However there is a need for help and assistance in how to implement them in an effective way.	A new Task Force has been set up regarding the implementation of the New Instruments throughout the thematic priority areas. This Task Force, composed of representatives of all RTD Directorates and all DGs involved in research programmes, aims at ensuring consistency in the		

RESPONSES BY COMMISSION SERVICES TO THE 2002 NUCLEAR FISSION AND RADIATION PROTECTION MONITORING REPORT

Experts Recommendations 2002	Commission Services' Responses	Services' Commitments (if any)	Deadline
	<p>implementation of the New Instruments and at preparing the work of the high level panel of independent experts that will be in charge of the midterm evaluation in 2004.</p> <p>It will also ensure that coherent information on the New Instruments to the outside world is provided.</p>	<p>Midterm evaluation of new instruments by high level panel of independent experts</p>	<p>Panel report by June 2004</p>
<p>Use TIP actively as a tool for planning and follow up of result implementation but define the process in a more useful way, and develop more useful forms.</p>	<p>As concerns the Fifth Framework Programme a study 'Methodological analysis of TIP as a tool for impact assessment and evaluation' has been commissioned by the Commission services to see to what extent it could be used for ex-post assessment. One of the outcomes of this study (which is based on rather heterogeneous completed TIPs), was that the TIP in its present form is not the best suited tool for impact and evaluation studies. However, TIPs have a good range of uses related to exploitation of results (its original purpose) and may contribute to impact studies as one amongst other inputs. To enhance the overall use of this tool, it is recommended that operational guidelines are established to help Fifth Framework Programme project co-ordinators in filling in the TIPs in a more efficient and standardised way.</p> <p>Under the Sixth Framework</p>		

RESPONSES BY COMMISSION SERVICES TO THE 2002 NUCLEAR FISSION AND RADIATION PROTECTION MONITORING REPORT

Experts Recommendations 2002	Commission Services' Responses	Services' Commitments (if any)	Deadline
	<p>Programme, it is foreseen to implement a plan for the valorisation and diffusion of knowledge, (annexe 1 of the contracts). This plan is to be established at the origin of the project and will be subject to a follow-up (and possible revision) during the project's life and at the end of it. It must also be underlined that the costs linked to the valorisation of results are now eligible for financing.</p>		
<p>Involvement of administrative people both in direct contacts with national research organisations in the contractual phase but also in progress meetings etc in FP6.</p>	<p>It is the intention to include in a more important way the administrative staff in direct follow-up of projects (Ips and NoE) as partners in the Commission's team. This will provide opportunities for closer contacts also for the administrative staff and not only the scientific officers.</p>		
<p>Introducing new terminology and definitions brings some confusion among the research community. In future, the new terminology should be restricted to only those that are really essential</p>	<p>A new policy and new objectives linked to the implementation of the European Research Area have been defined with the Sixth Framework Programme and new terminology and definitions corresponding to this new approach have been introduced.</p> <p>The Commission services Task Force regarding the implementation of New Instruments will help ensuring comprehensive and coherent information to the research community.</p>		

RESPONSES BY COMMISSION SERVICES TO THE 2002 NUCLEAR FISSION AND RADIATION PROTECTION MONITORING REPORT

Experts Recommendations 2002	Commission Services' Responses	Services' Commitments (if any)	Deadline
<p>A process is needed by which new member states is given support (when needed) to be able to fully participate in the research programme.</p>	<p>Based on the Action Plan for supporting Candidate Countries, calls for proposals for Specific Support Actions for Candidate Countries were published in the OJ C 79/7 of 2.04.03. The objective is to stimulate, encourage and facilitate the participation of organisations from the Associated Candidate Countries (ACC) in the activities of the priority thematic areas. The actions foreseen fully meet the recommendations of the Panel.</p> <p>Information efforts were made through regular meetings with Personal Representatives of Research Ministers from Candidate Countries, as well as through conferences in the Candidate Countries.</p>	<p>Follow-up of action plan for supporting Candidate Countries</p>	<p>Regular activity</p>