# COMMISSION OF THE EUROPEAN COMMUNITIES

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## PROPOSAL ON NEW GUIDELINES FOR THE 1984-87 MULTIANNUAL RESEARCH PROGRAMME OF THE JOINT RESEARCH CENTRE

(Communication from the Commission to the Council)

COM(82) 250 final

SUMMARY



Annexes

## I. Introduction

1. The multiannual research programme of the Joint Research Centre for the period 1980-83, adopted by the Council on 13 March 1980 (1), included the return to the Community budget of the ESSOR reactor which had been made available to the Italian Government pursuant to Article 6 (c) of the EAEC Treaty from March 1973 to December 1980.

2. At the same time, the Council approved the execution in ESSOR of an extensive irradiation experiment concerning the safety of light-water reactors (PWR).
However, it made the full performance of this project conditional upon precautionary measures, stating that:

> "It approves implementation of the Super-Sara project including, in accordance with the ACPM guidelines, experiments on loss of coolant through small and medium-sized breaches. However, the financial appropriation for the project (43.82 MEUA), which is thus approved, comprises one portion to be immediately available, viz. 3.31 MEUA necessary for work in 1980, while the remaining portion (40.61 MEUA), for the years 1981 to 1983, is frozen. At the end of 1980, on the basis of the new information then available the Council will be required to decide on continuance of the project and on release of the remaining portion of the appropriatior

3. In accordance with that statement, the Council examined early in 1981 a report submitted by the Commission on the performance of the first phase of the Super-Sara project (3) in which it stated that there was "an urgent need that the Council decide to pass without further delay to the second phase of the Super-Sara project and to release the corresponding appropriations."

4. On the basis of this report, additional information (4) and statements by the Commission (5), the Council agreed, at its meeting on 18-19 May 1981 (6) to release the funds intended for the continuation of the

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project under the 1980-83 multiannual programme and to set up a technical committee for Super-Sara, as a subgroup of the Advisory Committee on Programme Management for Reactor Safety.

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(1) OJ No L 72 of 18 March, 1980, p.11
(2) DOC ATO 31, p.2, paragraph 4, first subparagraph
(3) ATO 136
(4) ATO 134, ATO 135 and Annexes I, II and III to ATO 46
(5) Paragraph 4 of Section II and statements set out in Annex V to document ATO 46
(6) ATO 46

5. For its part, the Commission established an ad hoc structure of its own, the Internal Task Force (1), to give new impetus to this project and to carry out a detailed expert review of its objectives, its timetable and its resources.
This Task Force has submitted its conclusions, on the basis of which the JRC's Ispra establishment has proposed a number of readjustments to the multiannual programme so as to release the resources required for the smooth running of the Super-Sara project and the other priority components of the nuclear safety programme such as LOBI or PAHR, as the Council recommended (2).

6. After incorporating these proposals in a more general analysis of the future tasks of the JRC under the overall research strategy, examining the problems of the Geel, Karlsruhe and Petten establishment and obtaining the opinion of the JRC's General Advisory Committee (3) and of Euratom's Scientific and Technical Committee (4), the Commission believes that the time has come to propose a change of emphasis in the multiannual programme of the JRC.

7. Finally it should be noted that the italian licensing authorities have given on May 3, 1982 a favorable opinion on the modification proposals of the Sara loop forseen for the Super-SARA experiments, thus concluding in a positive way the first phase of the licencing procedure.

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(1) Set up on 20 July 1981
(2) ATO 46, item 3c and 4
(3) Appendix 9
(4) Appendix 10

The Commission has the assurance of the Italian authorities that the licensing procedure will take place stepwise accordingly to the needs of the execution of the Super-SARA project as soon as the resources needed for the execution of this project will here been authorized by the Council.

II. - Proposal on new guidelines for the 1984-87 multiannual programme of the Joint Research Centre

1. The new programme starts in 1984 and not in 1983, contrary to the normal practice for rolling programmes; this exceptional arrangement is in line with a recommendation made by the Council at its meeting on 18-19 May 1981 (1).
Minor readjustments will be made in 1982 by way of the budget procedure; in 1983 there will be a review of the current programme and the Commission will propose to the Council a decision to be taken at the end of 1982. These two operations pave the way for the introduction of the new programme, which will start in 1984.

2. Compared to the previous programme, the 1984-87 programme represents a modest increase in the volume of activities and level of funds, reflecting the growth in a number of objectives, the increased contribution made by the JRC to the planning and management of the Commission's sectoral activities and a readjustment in the light of experience in the resources going to programmes already approved.

3. The staff is increased by 161 posts, or 7% of the total staff now authorized. However, allowing for the reorganization in the Commission in 1982 and 1983, this amounts to a net increase of only 123 posts in the establishment plan.
This request must primarily be interpreted as an effort to obtain mobility rather than a definitive increase in the establishment plan, as a number of posts may later be freed and cancelled if an appropriate scheme for termination of service can be adopted in due course.
These posts will provide a margin for manoeuvre in an attempt to renew the range of scientific skills - an essential counterpart to the developments in the programmes - and to introduce younger elements into the departments. A better mutual adjustment of departments and programmes must be accompanied by greater productivity and the possibility of cutting out a number of jobs that will then be superfluous.

(1) Point 3, page 7, ATO 46

.../...

4. The level of budget funds shows a greater increase of around 15-20% a year on average. This is in line with the dual aim of extensive subcontracting of work to national bodies particularly well qualified to carry it out and of closely associating a growing number of national laboratories with Community research. This trend, already evident in the 1980-83 plan, will become even more marked under the new overall R/D strategy whenever the JRC is able to play a central and/or organizing role on a Community scale.

5. The new guidelines proposed affect the four JRC establishments to a different extent. As mentioned earlier, the most urgent problems concern the redeployment of Ispra staff to cope with problems regarded by the Council as meriting priority, in particular Super-Sara, LOBI and PAHR.

However, changes in the tasks of the Geel, Petten and Karlsruhe establishments are also envisaged in order to attain a greater degree of integration and complementarity in the activities of the four establishments of the Joint Research Centre.

New Guidelines

I

Nuclear Section

## 1. Topic - Nucear Safety

This topic is currently subdivised as follows :

- Reactor Safety : ---------- 308 RS (1)

  itself broken down into two objectives :

  . Safety of light-water reactors ---------- 186 RS

  . Safety of fast breeder reactors ---------- 122 RS

- Fuel-cycle Safety, itself broken down into three objectives

  . Safety of nuclear materials ---------- 52 RS

  . Fissile materials control and management ----- 55 RS

  . Plutonium fuels and actinide ---------- 177 RS

### 1.1. Objective - Reactor Safety

In the new programme, the resources for this objective are redeployed to allow simultaneous execution of the projects considered by the Council to merit priority, i.e., Super-SARA, LOBI and PAHR.
The remaining funds are concentrated on those parts of the present activities which, with the three major projects just mentioned, will form consistent and significant programmes in the European context.

Thus the research staff allocated to the objective Safety of light-water reactors (including Super-SARA and LOBI) is up from

186 RS to 262 RS,

an increase of 76 RS.

On the other hand (and this is not the outcome of a programme strategy but of internal contraints, mainly the shortage of specialist staff) the total staff for the objective Safety of fast-breeder reactors, despite an appreciable intensification of the Pahr project, sees its total is down from

122 RS to 98 RS,

a reduction of 24 RS.

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(1) "RS" denotes "research staff", the unit used by the Council in its programme Decisions. The total staff complement of the JRC is slightly more than double the number of RS.

The Commission will make every effort to execute its shared-cost research programme in such a way as to attenuate or even cancel out the adverse effects of this drop.

Overall, the Reactor Safety objectives goes up from

308 RS to 360 RS,

i.e., an increase of ---------- + 52 RS

It is impossible to find all the necessary skills inside the JRC and, despite the inevitable abandonment of a number of activities (even though they were appreciated by the ACPMs), there remains a shortfall to be covered by recruitment from outside.

1.2. Objective - Safety of Nuclear Materials

This objective is included in the 12-year framework programme on radioactive wastes adopted by the Council[1] and, at first sight, requires no substantial rethinking. However, the transfer of a team to Super-SARA means that the Actinide Separation project under this objective must be abandoned and the remainder of the activities reorganized, priority being given to the projects on Risk Evaluation and Protective Barriers, especially geological (continental and submerged) barriers.
The research staff are therefore bein transferred away from this programme, but some shared-cost projects are in view to maintain the level of the Community effort.
The staff complement therefore goes down from

52 RS to 42 RS,

i.e., a reduction of ---------- - 10 RS

1.3. Objective - Fissile Materials Control and Management

This activity, which is fully in line with the requirements of Euratom Safeguards, does not call for any real changes. In any case, the staff members carrying out this research do not possess the skills required for the major projects Super-SARA, LOBI and PAHR.

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(1) doc SEC(82) 310 of 24.2.1982 (framework program)

Consequently, it is proposed that the studies in progress should continue at their present level (55 RS), but that the technical content be given a greater degree of sophistication (advanced technologies) and be developed so as to provide a better organized back-up service for the Safeguards Autorities.

The staff complement remains at the present level of ------- 55 RS.

1.4. Objective - Plutonium Fuels and Actinide Research

This objective is the basic activity of the Karlsruhe Establishment and is focussed more particularly on fast-breeder reactors. Consideration is now being given to the greater involvement of the staff of this Establishment in research into light-water reactor safety and fuel-cycle safety, this could result in the jobs being more evently shared out between Karlsruhe and Ispra.
In the immediate future, the measures adopted merely abolish a supporting activity at Ispra which has become marginal; consequently, the staff complement goes down from 117 to 112 RS.

1.5. Summary

The nuclear Safety programme therefore shows the following changes :

from 186 to 262 RS for LWR safety;
from 122 to 98 RS for FBR safety
from 224 to 209 for fuel-cycle safety.

The share of Nuclear Safety in the JRC's total activities goes up from 48 % (532 RS out of a total of 1.110) to 49,4 % (569 RS out of a total of 1.152). The difference is not great, but Super-SARA alone then accounts for 13,5 % of the RS assigned to the JRC and 23 % of those allocated to Nuclear Safety.

The cuts made in the nuclear safety activities are not entirely disavantageous, since they fit into a more positive programme strategy; although several activities regarded as promising have to be abandoned, this reorganisation never the less consolidates the position

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of the JRC in the field of light-water reactor safety and streamlines activities in the fields of fissile materials control and risk evaluation in connection with the storage of radioactive wastes.

The position of the JRC in these three fields is strenghtened by a number of very important contracts for cooperation with bodies outside the Community and with the main national centres inside the Community.

Various agreements have already been concluded; there will be closer cooperation on Super-SARA with the USNRC (1) and with those carrying out the main experiments on light-water reactor safety in the Member States.

## 2. Topic - Nuclear measurements and nuclear reference materials and methods

### 2.1. Nuclear measurements

No notable changes are planned for this programme, which is executed entirely at the Geel Establishment (CBNM) and is subdivided into two objectives ; the measurement of nuclear constants and the preparation of nuclear reference materials and techniques.
In view of the experience gained by the CBNM in these research and service functions it is reasonable to consider extending this Establishment's activities to non-nuclear reference materials and methods.

Special measures are planned for this and the general guidelines are described in Chapter 5. D.

The staff complement for the nuclear activities remains unchanged at 108 RS.

#### COMMENTS

Before turning to non-nuclear activities, it seems desirable to put into context the activities involved in the reactor safety programme after the proposed reorganization.

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Expenditure on the revised programme on light-water reactor safety for the period 1983-87 is some 300 million ECU, including Super-SARA, LOBI, etc., equivalent to 13,5 % of the total JRC staff costs and 15 % in the budget for this total.

Assuming that the Super-SARA project runs from 1981 to 1990, its overall cost could amount to some 250-300 million ECU.

This is a large sum but it has to be viewed against the turnover of the European light-water reactor industry. By the end of the century the Community plans to equip itself with about another 100 Gigawatts of nuclear electricity capacity (including 55 GW already covered by firm orders). This represent an investment of about 150.000 million ECU over the next twenty years.

New guidelines

II

Non-nuclear section

The non-nuclear programme consists of relatively recent activities that have been intensively developed during successive multiannual plans (fusion, solar energy and remote sensing have seen their staff increased tenfold in the space of two or three plans); nevertheless, the limited funds inevitably impose restrictions on these activities and the impact on the guidelines will have to be evaluated.

The existing non-nuclear programme is as follows:

- new energies: 198 RS, equivalent to 46% of the non-nuclear research staff
- environment : 90 RS, equivalent to 21% of the non-nuclear RS
- remote sensing: 50 RS, equivalent to 12% of the non-nuclear RS
- data processing and service activities: 91 RS, equivalent to 21% of the non-nuclear RS.

1. Topic :"New energies"

The following objectives are at present found under this topic:

| | |
|---|---|
| - Fusion | 60 RS |
| - Solar energy | 60 RS |
| - Hydrogen, energy storage and transport | 40 RS |
| - High-temperature materials | 38 RS |

The planned reorganization will be carried out with virtually no change in the budget: the overall increase in the objectives under this topic is very limited (3%). Even this increase is intended to cover the recruitment of very specific skills and not for a quantitive increase in the research work.

1.1 Fusion

This objective is focused on fusion technology and is an excellent complement to the Fusion Association scheme which until recent years has concentrated mainly on plasma physics, taking the view that the fusion age had not yet come. This situation is now changing rapidly and it is essential for the JRC to participate in what promises to be a major technological challenge.

The Commission considers that the JRC must play a significant role in two fields: reactor safety and materials. It must also strengthen its design team (which has already made an effective contribution to the study of the INTOR project) so as to participate fully in the European NET project.

An increase in the research staff from 60 to 65 is planned for this purpose.

1.2 Solar Energy (60 RS)

This fast-developing programme has resulted in achievements such as the European solar test installation (ESTI) which will shortly be supplemented by ancillary installations in natural environments.

Although, Solar energy no longer appears to be a major primary source of energy supply for the Community, it is still extremely topical as an export technology and as a contribution to the more general and more urgent problem of energy conservation, especially for dwellings, farms and agri-food producers. This emphasis will be on the industrial utilization of test installations (concentration on component service lives, a field in which Ispra occupies a leading position, and on studies of energy systems applied to pilot campaigns organized sector by sector, for example small and medium-sized firms and industry, old housing, etc). A special effort devoted to the developing countries will be included in the planned activities of the Training Institute for the developing countries mentioned in Chapter 1.5.

The staff is maintained at the level of 60 RS.

1.3 Hydrogen production, energy transport and storage (40 RS)

Now that it has attained its objectives, in particular by demonstrating the feasibility of a closed-circuit process for direct production of hydrogen and by harmonizing estimates on the economic prospects of this system, the JRC has agreed to the termination of this research programme. However, it attaches particular importance to the utilization of the know-how acquired and the patents filed over the 10 years of research. The skills developed at Ispra have made it possible, with the agreement of the ACPM, to transfer some of the staff to research on the general problem of energy transport and storage, which in the proposed organization of the programme is combined with the other activities on new energies and the rational use of energy.

The staff complement remains at 40 RS.

1.4 High-temperature materials (HTM) (38RS)

This is an R/D activity that up to now has been intended to provide support for industrial development in fields where materials are exposed to severe conditions of service; this applies in particular to the production and use of energy.

This programme has experimental installations for the testing of materials under conditions close to service conditions in industry.

In line with the Community option on the improvement of industrial competitiveness and, more specifically, the resultant scientific and technical objectives, the work that is now centred on superalloys will in future be extended to cover composite materials, coated materials and ceramics, with a view to their use under the extreme conditions studied.

The Information Centre on high-temperature materials is to be consolidated; this project is of importance to stimulate industrial R/D on advanced materials as it meets a real need for information and documentation on the availability and properties of these materials.

These activities are obviously in keeping with the Community option on support for the conventional industries and the development of new technologies.

The staff complement remains at 38 RS.

2. Environment programme (90 RS)

There is little to comment on or question in this programme. It is the oldest of the Establishment non-nuclear programmes and in view of prevailing circumstances and its close links with DG XI and the indirect-action projects of ex-DG XII, it has several times been modified in such a way as to improve its internal policy, concentrate its activities and integrate them fully with the shared-cost activities.

It may perhaps be called upon to play a more important role in coordinating arrangements and to make the vast information system ECDIN properly operational.

The research is scaled to the staff and skills available, which are of a high level. In any case, the specialized skills of the persons working on this programme do not fit them for redeployment to other activities. Consequently, there is no reason to plan substantial changes of emphasis or of scale.

The staff complement remains at 90 RS.

3. Remote sensing programme (50 RS)

This programme, which has continued to grow at a fast pace, has led to several major European projects associating a large number of national laboratories with JRC research.

With the forthcoming launching of more efficient observation satellites and the growing interest shown in this new technology by those responsible for the common agricultural policy and by the developing countries, the JRC has been encouraged to prepare new projects for the rapid development of pilot operarations into demonstration projects for pre-operational systems. This trend will be accelerated. The training side of remote sensing is not being neglected since the JRC has chaired and encouraged the Council of Europe's working group on training in remote sensing at post-graduate level and has organized the Ispra remote sensing courses, which also involve extensive practical work in the field. A section of the European Training Institute for the developing countries will be devoted to training in remote sensing.

For the remote sensing activities it will be necessary to recruit a few specialists and project leaders ; this will be one of the priorities in the reallocation of the budget posts that are to be freed and the process has been started under the 1982 and 1983 budget revisions.

Although the staff level will remain at 50 RS, remote sensing will be substantially strengthened by this operation.

4. Programme on data processing and information technologies (34 RS)

This subject is of importance both for the Commission's policy (in particular the EURONET-DIANE and INSIS project (1), and the projects planned under the future programme ESPRIT) and for the modernization of the JRC which has a vast demand for data storage, processing and transmission capacity.

The data-processing programme appears to be a substantial one with 34 RS. In actual fact this figure includes service activities (in particular ESIS) (2) which have put tenuous links with data-processing.

In practice, the data-processing research team proper counts only about 11 people and whatever the hypotheses this must be doubled as soon as the resources (or internal mobility) permits. The research done by the existing team is of a high quality and its contribution to EURONET and to COST 11/11bis in particular is greatly appreciated;

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(1) EURONET = European data network; DIANE (direct information access network for Europe) development of data bases on EURONET; INSIS = interinstitutional information system.

(2) ESIS = European shielding information system (for nuclear installations).

however, it is impossible to envisage managing the Reference and Test Centre (CRT) (1), providing scientific and technical support and carrying out pilot experiments for INSIS and mounting projects as ambitious as INET and SCRIBA (2) with no more than the existing staff.

The new programme 1984-87 provides for the data-processing research staff to be increased from 11 to 21 RS by reducing the research work relating to EUROCOPI (3) and ESIS (4) and transferring these public services, reduced to a marginal level, to the objective "service activities".

The net balance of these operations is a reduction in the data-processing objective from 34 to 21 RS, but, as has been pointed out, this corresponds in practice to the doubling of the research component.

5. Topic: Service Activities

A. Activities within the Commission

This is a budget quota of about 40 people which the Council authorizes the Commission to use for the following purposes:

a) to enable the departments at headquarters to benefit from technical assistance, advices and services from the JRC (data banks, analyses, models, assistance for Safeguards, etc.; support for the CBR is dealt with separately under D).

b) to put the JRC's know-how to industrial use (an activity to be carried out jointly with DG XIII.

This activity does not call for any particular comment; it is flexible in nature, being carried out on a part-time basis by a number of people coming under different programmes. It should merely be noted that the total demands from the Brussels and Luxembourg departments well exceed the authorized ceiling and are tending to increase.

B. Public service activities

The aim here is to set up operational systems derived from JRC research and intended at a later stage to become independent.

Existing systems: Data banks, information services such as ESIS (4) and EUROCOPI (3), Ispra Courses (5).

These activities will henceforth employ about 10 people.

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(1) CRT = Reference and Test Centre, an instrument of the Commission's policy on information technology.
(2) INET= JRC internal network; SCRIBA= pilot experiment on integrated services
(3) EUROCOPI = Information system on computer programmes
(4) ESIS = European Shielding Information Service (already mentioned)
(5) Ispra Courses = Post-graduate training.

C. Training Institute for the developing countries

This Institute, which the Commission plans to establish at Ispra, is in line with this approval and in the first stage will cover the fields of energy planning and the introduction of new technologies together with remote sensing and cataloguing of resources.

It will be staffed by seven people as from 1983 (1982 amending budget) and they will set prepare the curriculum calling widely on outside lecturers and specialized institutes.

The Institute is intended mainly for grant holders under the various cooperation agreements between the EEC and the developing countries. It will provide training specially devised in the light of the needs and aspirations of the developing countries and its courses will be supplemented by in-service training in laboratories an by theses prepared in mixed north/south groups.

These theses will in turn give rise to possible scientific and technical cooperation projects between the Community and the students' countries of origin.

A second group of eight people will join the Institute, not for teaching purposes but to participate in these mixed groups and to plan and organize these practical cooperation campaigns with the developing countries.

The project will therefore involve a total of 15 people (of which 8 RS)

D. Community Bureau of References (CBR)

Under the existing programme the JRC's activities in the field of non-nuclear reference materials and methods is limited to providing scientific and technical back-up for the work of the CBR; this is provided by the Geel, Ispra and Petten establishments in accordance with their particular skills.

Thought is now being given to ways of obtaining closer links and greater integration in the activities on nuclear reference materials and methods in the CBNM and the non-nuclear activities of the CBR.

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It is proposed that in the initial stage the CBNM be the laboratory responsible for the preparation, packaging and storage of certain non-nuclear reference materials which need a special environment for these operations. This will require the construction of a building at a cost of 500.000 ECUs.

The activities of the CBNM in the field of nuclear reference materials and of the CBR in the field of non-nuclear reference materials will gradually be linked more closely and the Geel establishment will be mainly responsible for these closer relations.

The staff assigned to these activities is increased from 7 to 11 RS.

New guidelines

III

Section on large-scale installations

## III. Operation of large-scale installations

### 3.1 HFR Reactor (41 RS)

The HFR Reactor is operated by the JRC as a complementary programme which has a special financing scale.

The reactor, which has recorded a particularly high rate of use, is at present undergoing planned replacement of the vessel; the modifications made on this occasion will widen the range of experimental possibilities.

The Commission will continue its efforts to operate the HFR for the benefit of its own R/D programmes, assuming that the two Member States involved will continue to use it for their national requirements, under the complementary programme.

# R E C A P I T U L A T I O N

1. The total research staff is up by 42 people above the total authorized under the 1980-83 programme.

   This increase is mainly due to the reorganization of the nuclear activities in the Ispra establishment alone and reflects a substantial strengthening of the staff assigned to the Super-Sara project, offset as far as possible by the reduction or abolition of other activities.

2. The increase in the number of research staff is accompanied by a substantial strengthening of the scientific and technical back-up services at Ispra, on the efficiency of which depends the correct implementation of the Super-Sara project under the required safety conditions.

   However, it should be noted that the strengthening of these services will have a beneficial effect on all the Establishment's research activities, and not only on Super-Sara.

3. The JRC staff complements will under these conditions be increased by 123 people, equivalent to 5.4% of the 2.260 now authorized.

4. However, the main problem is not really a quantitative one: the difficulties encountered and the detailed analysis that has been made of them indicate that the JRC must rapidly recruit 161 new people offering the skills and specializations that it is lacking at present - in proportions which in the final analysis are extremely modest. This does not necessarily imply that the establishment plan of the JRC must be increased by the same amount, nor that it must be increased permanently.

5. To judge from what is revealed by the present situation, the basic problem is the necessary flexibility of management that those responsible for the JRC must be allowed in order to cope with the development of techniques and programmes. In the present situation, a necessary margin of manoeuvre would probably be provided by the 123 posts requested which, as has been shown, will allow 161 new people to be recruited.

6. These new recruits, some of whom would work in key functions or specialities, would without any doubt make it possible to improve the general organization of the JRC and subsequently allow it to embark on a slimming-down process, arrangements for which are to be studied forthwith by the Commission.

7. For this, suitable measures for termination of service are necessary; as soon as these are operational, the JRC will be able to free about half of the supplementary posts allocated to it and have them cancelled by the budget procedure.

GRADUAL IMPLEMENTATION OF THE NEW PLAN

1. In the short term (1982-83)

Priority must be given to the redeployment of staff in order to make it possible correctly to execute the projects to which precedence has been accorded by the Council, in particular the Super-Sara, LOBI and PAHR activities. As has been explained, this requires the nuclear programme to be substantially reorganized and a number of key posts to be rapidly filled.

The Commission also considers it extremely important that the JRC play an active part in R/D projects in sectors that relate to the Common Agricultural Policy (cataloguing of soils and cataloguing of farming land by remote sensing) and development aid policy. Under its remote sensing objective (the Niger-Bani project) and service activities (expertise missions), the JRC has demonstrated the usefulness of promoting joint projects; it is essential that it be given the wherewithal to consolidate this function.

With a view to reorganizing the programme, the Commission intends to enter the following expenditure in the budget:

a) 1982

Staff

20 additional posts (first stage) for Super-Sara, together with the redeployment of the reactor safety and associated support and infrastructure activities.

11 additional posts for remote sensing (the land use project);

7 additional posts (first stage) for the Training Institute for Developing Countries;

These 38 posts are drawn from within the JRC's total authorized staff complement of 2.260.

Budget

Apart from certain proposals relating to general management, the Commission intends to enter in the draft amending budget for 1982 a sum of approximately 17.5 million ECU in respect of the Super-Sara project.

b) 1983

Staff

37 additional posts (second stage) for Super-Sara, the remainder of the reactor safety programme and the associated support and infrastructure activities;

4 posts for the development of the CBR activity at the CEWM;

5 posts for the fusion programme

8 additional posts (second stage) for the Training Institute for Developing Countries;

This increase of 54 posts in the existing staff complement will form part of the proposal for a Decision revising the current 1980-83 programme, which will be laid before the Council in October 1982.

Budget

The proposals for the revision of the 1980-83 programme will involve an increase of approximately 16 million ECU in the 1983 budget.

2. In the context of the new 1984-87 programme

Staff

a) Allocation in 1984 and 1985 to the departments concerned of the third stage of increases in staff to reinforce the Super-Sara, reactor safety and associated support and infrastructure activities;

b) Reorganization of the other objectives along the new guidelines proposed in this document. For this purpose, 69 posts will be added to the staff complements under the new 1984-87 programme (38 in 1982, 54 in 1983 and 69 thereafter, making a total of 161).

c) A reduction of 80 in the number of posts from the date on which the scheme for termination of service takes effect, according to the following schedule:

15 in the first year,

25 in the second year,

40 in the third year.

Budget

The programme proposals deriving from such a policy will require an annual budget for the JRC of slightly more than 200 million ECU over the period 1984-87 (see Annex 1).

CONCLUSION

The Commission considers that the efforts requested both of the Member States (increased costs) and of the JRC staff (mobility, retraining, termination of service, etc.) are justified and commensurate with what is at stake. It draws the Council's attention to the benefits the Community can derive from these reorganization measures, in terms of the JRC's productivity and usefulness.

The Commission wishes the Council to take note of the fact that if reorganized along the broad lines proposed in this document, the JRC programme would satisfactorily correspond to the priorities for Community R/D as discussed during the Council meetings of November 1981 and March 1982.

It asks the Council to note that the balance between the proposed topics broadly corresponds to a choice that is both in line with the Community's priority options and compatible with the scientific and technical know-how available within the JRC.

The Commission requests the Council to take note of the fact that, in order to attain these objectives:

- the financial resources made available to the JRC must be increased by 15-20%;
- the JRC's staff complement must undergo an increase of approximately 6%, brought down to 3% at the end of the programme;
- measures relating to termination of service will be proposed in order to enable skills to be renewed while avoiding any excessive increase in staff;
- interim measures concerning the 1982 and 1983 budgets will make it possible to begin putting the reorganization of the programme into effect immediately.

ANNEX 1

Changes in resources (total staff, research staff, budget) in the JRC reorganization plan

| Programmes | 1980-83 Programme | | | Amendment 1982 | | | Revision 1983 | | | 1984-87 Programme | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total staff | R.S. | MECUs/y. | Total staff | R.S. | MECUs | Total staff | R.S. | MECUs | Total staff | R.S. | MECUs/y. |
| A. NUCLEAR SAFETY AND THE FUEL CYCLE | | | | | | | | | | | | |
| 1. Reactor safety | 716 | 308 | 51,05 | | 308 | 76,09 | | 326 | 59,64 | | 360 | 72 |
| including Super-Sara Project | 228 | 75 | 20,48 | | 75 | 40,29 | | 122 | 26,50 | | 156 | 39 |
| 2. Plutonium fuels and actinide research | 207 | 117 | 17,80 | | 117 | 17,45 | | 112 | 16,28 | | 112 | 18 |
| 3. Safety of nuclear materials | 115 | 52 | 6,78 | | 52 | 6,57 | | 42 | 5,49 | | 42 | 10 |
| 4. Fissile materials control and management | 112 | 55 | 6,73 | | 55 | 6,92 | | 55 | 6,43 | | 55 | 9 |
| Total | 1150 | 532 | 82,36 | 1156 | 532 | 107,03 | 1172 | 535 | 87,838 | 1239 | 569 | 109 |
| B. NEW ENERGIES | | | | | | | | | | | | |
| 1. Solar energy | 117 | 60 | 7,52 | | 60 | 7,63 | | 60 | 7,27 | | 60 | 9 |
| 2. Hydrogen production, energy storage ans transport | 79 | 40 | 4,81 | | 40 | 4,70 | | 40 | 5,12 | | 40 | 5 |
| 3. Thermonuclear fusion technology | 124 | 60 | 8,63 | | 60 | 8,77 | | 65 | 8,39 | | 65 | 10 |
| 4. High-temperature materials | 63 | 38 | 5,00 | | 38 | 4,84 | | 38 | 4,61 | | 38 | 5 |
| Total | 383 | 198 | 25,96 | 389 | 198 | 25,94 | 402 | 203 | 25,39 | 404 | 203 | 29 |
| C. STUDY AND PROTECTION OF THE ENVIRONMENT | | | | | | | | | | | | |
| 1. Protection fo the environment | 174 | 90 | 11,29 | | 90 | 11,04 | | 90 | 10,90 | | 90 | 12 |
| 2. Remote sensign from space | 97 | 50 | 5,80 | | 50 | 6,15 | | 50 | 5,92 | | 50 | 7 |
| Total | 271 | 140 | 17,09 | 270 | 140 | 17,19 | 268 | 140 | 16,82 | 268 | 140 | 19 |
| D. NUCLEAR MEASUREMENTS | 184 | 108 | 14,42 | 181 | 108 | 14,06 | 183 | 108 | 14,04 | 183 | 108 | 14 |
| E. SPECIFIC SUPPORT FOR THE COMMISSION'S SECTORAL ACTIVITIES | | | | | | | | | | | | |
| 1. Data processing | 69 | 34 | 4,27 | | 34 | 4,33 | | 21 | 3,94 | | 21 | 4,5 |
| 2. Support for safeguard | 25 | 13 | 1,84 | | 13 | 1,76 | | 13 | 1,56 | | 13 | 1,5 |
| 3. Support for the Community Bureau of References | 13 | 7 | 1,01 | | 7 | 0,83 | | 11 | 0,85 | | 11 | 1,0 |
| 4. Training and education | 17 | 9 | 1,02 | | 6 | 0,76 | | 6 | 1,10 | | 6 | 1,5 |
| 5. Utilization of research resluts | 8 | 1 | 0,54 | | 1 | 0,39 | | 5 | 0,86 | | 5 | 0,8 |
| 6. Provision of scientific and technical services | 52 | 27 | 3,07 | | 27 | 3,19 | | 27 | 4,29 | | 27 | 5,7 |
| 7. Training Institute for the development countries | - | - | - | | 3 | | | 8 | | | 8 | |
| Total | 184 | 91 | 11,75 | 178 | 91 | 11,26 | 201 | 91 | 12,60 | 201 | 91 | 15 |
| F. OPERATION OF LARGE-SCALE INSTALLATIONS | | | | | | | | | | | | |
| 1. Operation of the HFR Reactor | 88 | 41 | 15,96 | 86 | 41 | 15,20 | 88 | 41 | 14,57 | 88 | 41 | 16 |
| TOTAL GENERAL | 2260 | 1110 | 167,54 | 2260 | 1110 | 190,68 | 2314 | 1118 | 171,26 | 2183 (1) | 1152 | 202,00 |

The budgets are expressed in million ECU at constant mid-1983 values.

(1) A reduction of total staff to the level of 2303 is forseen by a scheme of service termination

Annex 1B

MULTIANNUAL SCHEDULE OF COMMITMENTS BY RESEARCH OBJECTIVES (in KEUA)

| Art. | Item | Objective / Heading | Programme 1980 - 1983 | | | | | Reorientation progr. CCR | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1980 | 1981 | 1982 Subsis. Budget | 1983 | Total | 1982 | 1983 | 1980-83 Total |
| 730 | | Joint Research Centre | | | | | | | | |
| | | Common Programme | | | | | | | | |
| | 7300 | Nuclear safety and fuel cycle | | | | | | | | |
| | | - reactor safety | 11 904 | 16 499 | 5 648 | 23 761 | 17 119 | 74 923 | 18 991 | 10 222 | 104 136 |
| | | - plutonium fuels and research on actinides | 7 000 | 7 008 | 597 | 8 281 | 7 655 | 30 541 | 30 | 189 | 30 760 |
| | | - safety of nuclear materials | 1 692 | 1 618 | 4 | 1 727 | 1 530 | 6 572 | 249 | 88 | 6 909 |
| | | - safeguarding and management of fissiles materials | 1 671 | 1 532 | 48 | 1 904 | 1 706 | 6 859 | 249 | 249 | 7 357 |
| | | - 1977-80 programme termination | 503 | - | - | - | - | 503 | - | - | 503 |
| | | - Staff appropriations | 28 614 | 38 590 | 6 613 | 42 106 | 49 220 | 165 143 | - | -141 | 165 002 |
| | | Total item 7300 | 51 384 | 65 233 | 12 910 | 77 779 | 77 231 | 284 541 | 19 519 | 10 607 | 314 667 |
| | 7301 | New sources of energy | | | | | | | | | |
| | | - solar energy | 2 215 | 2 082 | 0 | 2 299 | 1 938 | 8 534 | 293 | 339 | 9 166 |
| | | - hydrogen production (energy - storage and transport) | 1 335 | 935 | 0 | 1 753 | 1 044 | 4 467 | 195 | 341 | 5 003 |
| | | - thermonuclear fusion technology | 2 550 | 2 445 | 45 | 3 058 | 2 236 | 10 334 | 295 | 502 | 11 131 |
| | | - high-temperature materials | 1 787 | 1 508 | 285 | 1 894 | 1 669 | 7 143 | 7 | 133 | 7 283 |
| | | - 1977-80 progr. termination | 203 | - | - | - | - | 203 | - | - | 203 |
| | | - Staff appropriations | 12 483 | 14 150 | 1 606 | 14 383 | 16 419 | 59 041 | - | 765 | 59 806 |
| | | Total item 7301 | 20 573 | 22 120 | 1 935 | 22 787 | 23 306 | 89 722 | 790 | 2 080 | 92 592 |
| | 7302 | Study and protection of the environment | | | | | | | | | |
| | | - environmental protection | 2 940 | 2 823 | 322 | 3 245 | 3 049 | 12 379 | 402 | 480 | 13 261 |
| | | - Aerospace remote sensing | 1 165 | 1 633 | 317 | 1 780 | 1 560 | 6 455 | 244 | 280 | 6 979 |
| | | - 1977-80 programme termination | 190 | - | - | - | - | 190 | - | - | 190 |
| | | - Staff appropriations | 8 173 | 9 066 | 1 263 | 9 957 | 11 655 | 40 114 | - | -207 | 39 907 |
| | | - Total item 7302 | 12 463 | 13 522 | 1 901 | 14 982 | 16 264 | 59 138 | 646 | 553 | 60 337 |

MULTIANNUAL SCHEDULE OF COMMITMENTS BY RESEARCH OBJECTIVES (in KEUA)

| Art. | Item | Objective | Programme 1980-1983 | | | | | Reorientation progr.CCR | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Heading | 1980 | 1981 | 1982 Subsist | 1982 Budget | 1983 | Total | 1982 | 1983 | Total 1980-83 |
| | 7303 | Nuclear measurements | 5 406 | 4 403 | 26 | 5 756 | 5 010 | 20 601 | - | 921 | 21 522 |
| | | 1977-80 programme termination | 27 | - | - | - | - | 27 | - | - | 27 |
| | | Staff appropriations | 6 146 | 6 957 | 841 | 7 020 | 6 271 | 29 137 | - | - 158 | 28 979 |
| | | Total item 7303 | 11 579 | 11 261 | 867 | 12 777 | 13 201 | 49 765 | - | 763 | 30 528 |
| | 7301 | Specific support to the Commission's sectoral activities | | | | | | | | | |
| | | - data processing | 1 106 | 1 237 | 46 | 1 317 | 1 307 | 5 013 | 166 | 98 | 5 277 |
| | | - safeguards support | 657 | 560 | 220 | 722 | 562 | 2 721 | 20 | 67 | 2 808 |
| | | - support to the CBR | 272 | 266 | 29 | 267 | 266 | 1 100 | 19 | 37 | 1 156 |
| | | - training | 227 | 279 | 2 | 296 | 323 | 1 128 | 44 | 50 | 1 222 |
| | | - development to industrial stage | 96 | 155 | 9 | 182 | 228 | 671 | 5 | 100 | 776 |
| | | - scientific and technical serv. | 634 | 558 | 44 | 596 | 610 | 2 442 | 128 | 453 | 3 023 |
| | | - 1977-80 programme termination | 83 | - | - | - | - | 83 | - | - | 83 |
| | | - Staff appropriations | 6 102 | 6 340 | 983 | 6 474 | 7 562 | 27 461 | - | 919 | 28 380 |
| | | - total item 7301 | 9 177 | 9 395 | 1 333 | 9 855 | 10 859 | 40 619 | 382 | 1 724 | 42 725 |
| 731 | 7310 | Operation of major installations | | | | | | | | | |
| | | - development of HFR reactor | 8 938 | 11 099 | 397 | 10 590 | 10 663 | 41 688 | - | 115 | 41 803 |
| | | - 1977-80 programme termination | 104 | - | - | - | - | 104 | - | - | 104 |
| | | - Staff appropriations | 2 786 | 3 069 | 660 | 3 230 | 3 872 | 13 617 | - | -78 | 13 539 |
| | | Total item 7310 | 11 829 | 14 168 | 1 058 | 13 620 | 14 535 | 55 410 | - | 37 | 55 447 |
| | | Total of J.R.C. | | | | | | | | | |
| | | - 1977-80 programme termination | 1 110 | - | - | - | - | 1 110 | - | - | 1 110 |
| | | Specific appropr. 1980-83 | 51 595 | 56 631 | 8 038 | 68 830 | 58 476 | 243 570 | 21 337 | 14 664 | 279 571 |
| | | Staff appropr. 1980-83 | 64 305 | 78 073 | 11 966 | 83 170 | 97 000 | 334 514 | - | 1 100 | 335 614 |
| | | Total 1980-83 programme | 115 900 | 134 704 | 20 004 | 152 000 | 155 476 | 578 084 | - | - | - |
| | | 1980-83 programme + reorganisation | | | | | | 578 084 | 21 337 | 15 764 | 615 185 |

Annex 1B

MULTIANNUAL SCHEDULE OF COMMITMENTS BY RESEARCH OBJECTIVES (in KEUA)

| Art. | Item | Objective / Heading | Programme 1980 - 1983 | | | | | Reorientation progr. CCR | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1980 | 1981 | 1982 Subsis. | Budget | 1983 | Total | 1982 | 1983 | 1980-83 Total |
| 730 | | Joint Research Centre | | | | | | | | | |
| | | Common Programme | | | | | | | | | |
| | 7300 | Nuclear safety and fuel cycle | | | | | | | | | |
| | | - reactor safety | 11 904 | 16 499 | 5 648 | 23 761 | 17 119 | 74 923 | 18 991 | 10 222 | 104 136 |
| | | - plutonium fuels and research on actinides | 7 000 | 7 008 | 597 | 8 281 | 7 655 | 30 541 | 30 | 189 | 30 760 |
| | | - safety of nuclear materials | 1 692 | 1 618 | 4 | 1 727 | 1 530 | 6 572 | 249 | 88 | 6 909 |
| | | - safeguarding and management of fissiles materials | 1 671 | 1 532 | 48 | 1 904 | 1 706 | 6 859 | 249 | 249 | 7 357 |
| | | - 1977-80 programme termination | 503 | - | - | - | - | 503 | - | - | 503 |
| | | - Staff appropriations | 28 614 | 38 590 | 6 613 | 42 106 | 49 220 | 165 143 | - | -141 | 165 002 |
| | | Total item 7300 | 51 384 | 65 233 | 12 910 | 77 779 | 77 231 | 284 541 | 19 519 | 10 607 | 314 667 |
| | 7301 | New sources of energy | | | | | | | | | |
| | | - solar energy | 2 215 | 2 082 | 0 | 2 299 | 1 938 | 8 534 | 293 | 339 | 9 166 |
| | | - hydrogen production (energy - storage and transport) | 1 335 | 935 | 0 | 1 753 | 1 044 | 4 467 | 195 | 341 | 5 003 |
| | | - thermonuclear fusion technology | 2 550 | 2 445 | 45 | 3 058 | 2 236 | 10 334 | 295 | 502 | 11 131 |
| | | - high-temperature materials | 1 787 | 1 508 | 285 | 1 894 | 1 669 | 7 143 | 7 | 133 | 7 283 |
| | | - 1977-80 progr. termination | 203 | - | - | - | - | 203 | - | - | 203 |
| | | - Staff appropriations | 12 483 | 14 150 | 1 606 | 14 383 | 16 419 | 59 041 | - | 765 | 59 806 |
| | | Total item 7301 | 20 573 | 22 120 | 1 935 | 22 787 | 23 306 | 89 722 | 790 | 2 080 | 92 592 |
| | 7302 | Study and protection of the environment | | | | | | | | | |
| | | - environmental protection | 2 940 | 2 823 | 322 | 3 245 | 3 049 | 12 379 | 402 | 480 | 13 261 |
| | | - Aerospace remote sensing | 1 165 | 1 633 | 317 | 1 780 | 1 560 | 6 455 | 244 | 280 | 6 979 |
| | | - 1977-80 programme termination | 190 | - | - | - | - | 190 | - | - | 190 |
| | | - Staff appropriations | 8 173 | 9 066 | 1 263 | 9 957 | 11 655 | 40 114 | - | -207 | 39 907 |
| | | - Total item 7302 | 12 463 | 13 522 | 1 901 | 14 982 | 16 264 | 59 138 | 646 | 553 | 60 337 |

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MULTIANNUAL SCHEDULE OF COMMITMENTS BY RESEARCH OBJECTIVES (in KEUA)

| Art. | Item | Objective | Programme 1980-1983 | | | | | Reorientation progr.CCR | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Heading | 1980 | 1981 | 1982 Subsist | 1982 Budget | 1983 | Total | 1982 | 1983 | Total 1980-83 |
| | 7303 | Nuclear measurements | 5 406 | 4 403 | 26 | 5 756 | 5 010 | 20 601 | - | 921 | 21 522 |
| | | 1977-80 programme termination | 27 | - | - | - | - | 27 | - | - | 27 |
| | | Staff appropriations | 6 146 | 6 957 | 841 | 7 020 | 6 271 | 29 137 | - | - 158 | 28 979 |
| | | Total item 7303 | 11 579 | 11 261 | 867 | 12 777 | 13 201 | 49 765 | - | 763 | 30 528 |
| | 7301 | Specific support to the Commission's sectoral activities | | | | | | | | | |
| | | - data processing | 1 106 | 1 237 | 46 | 1 317 | 1 307 | 5 013 | 166 | 98 | 5 277 |
| | | - safeguards support | 657 | 560 | 220 | 722 | 562 | 2 721 | 20 | 67 | 2 808 |
| | | - support to the CBR | 272 | 266 | 29 | 267 | 266 | 1 100 | 19 | 37 | 1 156 |
| | | - training | 227 | 279 | 2 | 296 | 323 | 1 128 | 44 | 50 | 1 222 |
| | | - development to industrial stage | 96 | 155 | 9 | 182 | 228 | 671 | 5 | 100 | 776 |
| | | - scientific and technical serv. | 634 | 558 | 44 | 596 | 610 | 2 442 | 128 | 453 | 3 023 |
| | | - 1977-80 programme termination | 83 | - | - | - | - | 83 | - | - | 83 |
| | | - Staff appropriations | 6 102 | 6 340 | 983 | 6 474 | 7 562 | 27 461 | - | 919 | 28 380 |
| | | - total item 7301 | 9 177 | 9 395 | 1 333 | 9 855 | 10 859 | 40 619 | 382 | 1 724 | 42 725 |
| 731 | 7310 | Operation of major installations | | | | | | | | | |
| | | - development of HFR reactor | 8 938 | 11 099 | 397 | 10 590 | 10 663 | 41 688 | - | 115 | 41 803 |
| | | - 1977-80 programme termination | 104 | - | - | - | - | 104 | - | - | 104 |
| | | - Staff appropriations | 2 786 | 3 069 | 660 | 3 230 | 3 872 | 13 617 | - | -78 | 13 539 |
| | | Total item 7310 | 11 829 | 14 168 | 1 058 | 13 620 | 14 535 | 55 410 | - | 37 | 55 447 |
| | | Total of J.R.C. | | | | | | | | | |
| | | - 1977-80 programme termination | 1 110 | - | - | - | - | 1 110 | - | - | 1 110 |
| | | Specific appropr. 1980-83 | 51 595 | 56 631 | 8 038 | 68 830 | 58 476 | 243 570 | 21 337 | 14 664 | 279 571 |
| | | Staff appropr. 1980-83 | 64 305 | 78 073 | 11 966 | 83 170 | 97 000 | 334 514 | - | 1 100 | 335 614 |
| | | Total 1980-83 programme | 115 900 | 134 704 | 20 004 | 152 000 | 155 476 | 578 084 | - | - | - |
| | | 1980-83 programme + reorganisation | | | | | | 578 084 | 21 337 | 15 764 | 615 185 |

ANNEX 1C

MULTIANNUAL SCHEDULE OF PAYMENTS BY RESEARCH OBJECTIVES

(in KEUA)

| Art. | Item | Objectives / Heading | Programme 1980-1983 | | | | | | Reorientation programme CCR | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1980 | 1981 | 1982 Subsist | 1982 Budget | 1983 | 1984 | Total | 1982 | 1983 | 1984 | Total 1980-84 |
| 730 | | Joint Research Centre | | | | | | | | | | | |
| | | Common programme | | | | | | | | | | | |
| | 7300 | Nuclear safety and fuel cycle | | | | | | | | | | | |
| | | -Reactor safety | 4.518 | 10.212 | 4.663 | 17.231 | 24.361 | 13.939 | 74.923 | 19.023 | 3.568 | 6.633 | 104.147 |
| | | -Plutonium fuels and research on actinides | 3.265 | 5.839 | 449 | 7.891 | 9.052 | 4.045 | 30.541 | 24 | 91 | 99 | 30.755 |
| | | -Safety on nuclear materials | 758 | 1.365 | 295 | 1.372 | 2.006 | 777 | 6.572 | 246 | -97 | 185 | 6.906 |
| | | -Safeguarding and management of fissile materials | 771 | 1.380 | 249 | 1.445 | 2.144 | 870 | 6.859 | 248 | 47 | 200 | 7.354 |
| | | -1977-1980 programme termination | 9.606 | 2.744 | - | - | - | - | 12.350 | - | - | - | 12.350 |
| | | Staff appropriations | 28.320 | 40.108 | 5.095 | 42.105 | 49.231 | 284 | 165.143 | - | -141 | - | 165.002 |
| | | TOTAL ITEM 7300 | 47.238 | 61.648 | 10.750 | 70.044 | 86.794 | 19.915 | 296.388 | 19.541 | 3.469 | 7.116 | 326.514 |
| | 7301 | New sources of energy | | | | | | | | | | | |
| | | -Solar energy | 756 | 2.236 | 122 | 2.346 | 1.891 | 1.182 | 8.534 | 290 | 107 | 242 | 9.173 |
| | | -Hydrogen production (energy, storage and transport) | 483 | 971 | 97 | 1.148 | 1.171 | 596 | 4.467 | 194 | 177 | 164 | 5.002 |
| | | -Thermonuclear fusion technology | 858 | 2.597 | 208 | 3.127 | 2.314 | 1.230 | 10.334 | 290 | 256 | 247 | 11.127 |
| | | -High-temperature materials | 773 | 1.610 | 324 | 1.575 | 1.783 | 1.079 | 7.143 | 5 | 89 | 44 | 7.281 |
| | | -1977-1980 programme termination | 3.796 | 921 | - | - | - | - | 4.717 | - | - | - | 4.717 |
| | | Staff appropriations | 12.340 | 14.162 | 1.604 | 14.386 | 16.418 | 130 | 59.041 | - | 765 | - | 59.806 |
| | | TOTAL ITEM 7301 | 19.007 | 22.497 | 2.355 | 22.583 | 23.577 | 4.218 | 94.236 | 779 | 1.393 | 698 | 97.106 |
| | 7302 | Study and protection of the environment | | | | | | | | | | | |
| | | -Environmental protection | 1.448 | 2.590 | 556 | 2.834 | 3.201 | 1.750 | 12.379 | 397 | 156 | 331 | 13.263 |
| | | - Aerospace remote sensing | 383 | 1.471 | 354 | 948 | 2.150 | 1.150 | 6.455 | 242 | 88 | 192 | 6.977 |
| | | -1977-1980 programme termination | 1.628 | 713 | - | - | - | - | 2.340 | - | - | - | 2.340 |
| | | Staff appropriations | 8.083 | 9.210 | 1.120 | 9.957 | 11.647 | 97 | 40.114 | - | -207 | - | 39.907 |
| | | TOTAL ITEM 7302 | 11.542 | 13.983 | 2.030 | 13.739 | 16.998 | 2.997 | 61.288 | 639 | 36 | 524 | 62.487 |

MULTIANNUAL SCHEDULE OF PAYMENTS BY RESEARCH OBJECTIVES

ANNEX 1C (cont.)

(in KEUA)

| Art. | Item | Objectives | Programme 1980-1983 | | | | | | Reorientation progr. CCR | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Heading | 1980 | 1981 | 1982 Subsist | 1982 Budget | 1983 | 1984 | Total | 1982 | 1983 | 1984 | Total 1980-84 |
| | 7303 | Nuclear measurements | 3.219 | 4.732 | 440 | 4.514 | 5.184 | 2.512 | 20.601 | - | 588 | 333 | 21.522 |
| | | -1977-1980 programme termination | 2.692 | 715 | - | - | - | - | 3.406 | - | - | - | 3.406 |
| | | Staff appropriations | 6.089 | 6.937 | 761 | 7.021 | 8.271 | 57 | 29.137 | - | -158 | - | 28.979 |
| | | TOTAL ITEM 7303 | 11.999 | 12.384 | 1.202 | 11.535 | 13.455 | 2.570 | 53.144 | - | 430 | 333 | 53.907 |
| | 7304 | Specific support to the Commission's sectorial activities | | | | | | | | | | | |
| | | -Data processing | 551 | 1.003 | 17 | 963 | 1.625 | 853 | 5.013 | 165 | -26 | 128 | 5.280 |
| | | -Safeguards support | 370 | 519 | 178 | 587 | 758 | 308 | 2.721 | - | 35 | 51 | 2.807 |
| | | -Support to the Central Bureau of References | 129 | 259 | 16 | 203 | 297 | 195 | 1.100 | 19 | 16 | 21 | 1.156 |
| | | -Training | 117 | 254 | 9 | 230 | 326 | 192 | 1.128 | 43 | 16 | 35 | 1.222 |
| | | -Development to industrial stage | 15 | 136 | 8 | 170 | 175 | 167 | 671 | 5 | 88 | 12 | 776 |
| | | -Scientific and technical services | 243 | 624 | 19 | 556 | 639 | 361 | 2.442 | 146 | 325 | 108 | 3.021 |
| | | -1977-1980 programme termination | 1.006 | 199 | - | - | - | - | 1.205 | - | - | - | 1.205 |
| | | Staff appropriations | 6.054 | 6.380 | 943 | 6.471 | 7.560 | 53 | 27.461 | - | 919 | - | 28.380 |
| | | TOTAL ITEM 7304 | 8.485 | 9.375 | 1.189 | 9.181 | 11.381 | 2.129 | 41.741 | 378 | 1.372 | 356 | 43.847 |
| 731 | 7310 | Operation of major installations | | | | | | | | | | | |
| | | -Development of HFR reactor | 5.661 | 9.092 | 2.879 | 8.686 | 12.609 | 2.761 | 41.688 | - | 101 | 14 | 41.803 |
| | | -1977-1980 programme termination | 2.832 | 798 | - | - | - | - | 3.631 | - | - | - | 3.631 |
| | | Staff appropriations | 2.787 | 3.165 | 554 | 3.229 | 3.873 | 9 | 13.617 | - | -78 | - | 13.539 |
| | | TOTAL ITEM 7310 | 11.281 | 13.055 | 3.433 | 11.915 | 16.482 | 2.770 | 58.936 | - | 23 | 17 | 58.973 |
| | | Joint Research Centre - Total | | | | | | | | | | | |
| | | 1977-1980 programme termination | 21.559 | 6.091 | - | - | - | - | 27.650 | - | - | - | 27.650 |
| | | Specific appropr. 1980-83 | 24.318 | 46.889 | 10.881 | 55.827 | 71.687 | 33.967 | 243.570 | 21.337 | 5.623 | 9.041 | 279.571 |
| | | Staff appropr. 1980-83 | 63.673 | 79.963 | 10.077 | 83.170 | 97.000 | 630 | 334.514 | - | 1.100 | - | 335.614 |
| | | TOTAL PROGRAMME 1980-1983 | 87.992 | 126.852 | 20.958 | 138.997 | 168.687 | 34.597 | 578.084 | - | - | - | - |
| Programme 1980-1983 plus reorientation | | | | | | | | | 578.084 | 21.337 | 6.723 | 9.041 | 615.185 |

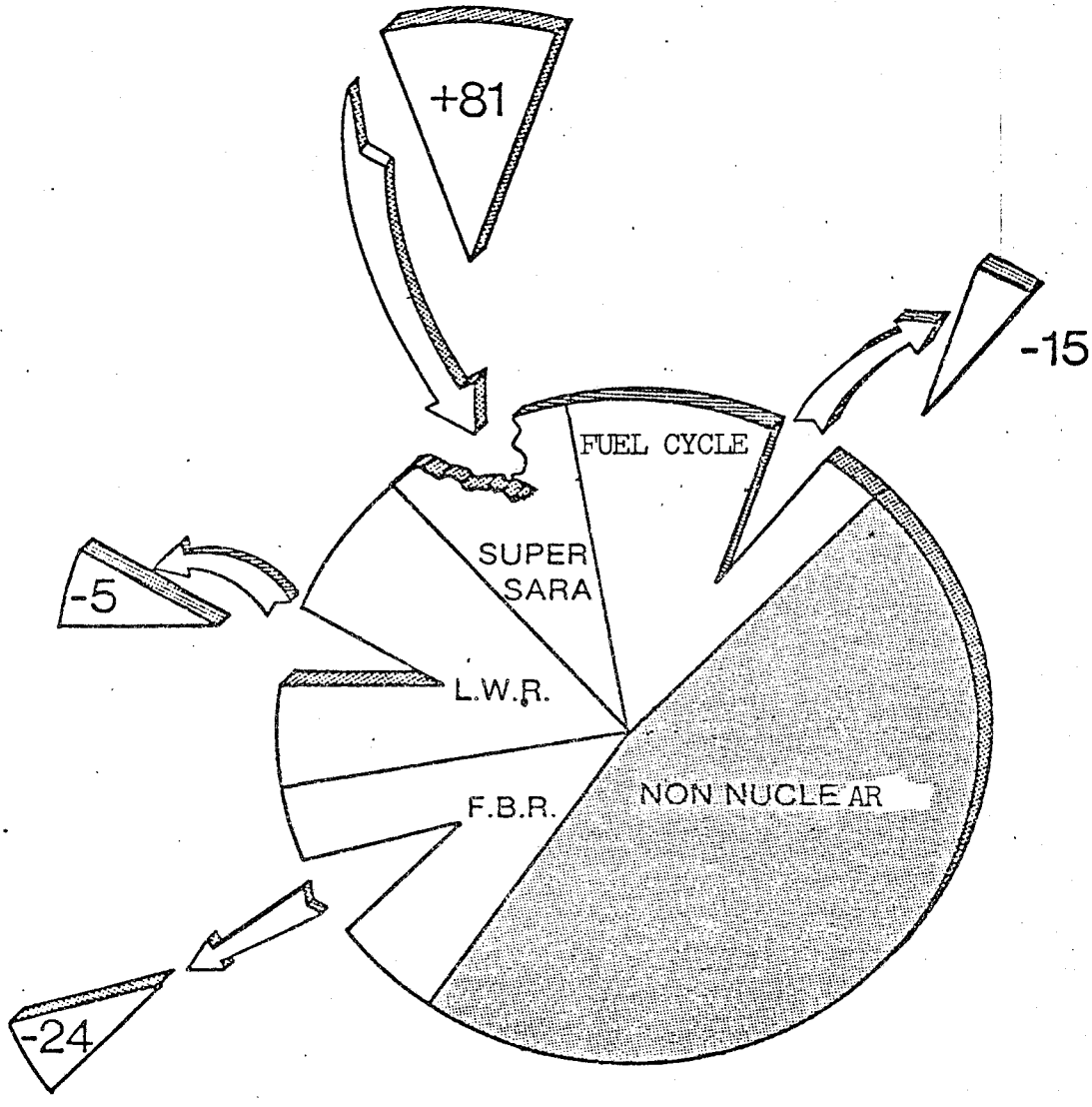
CHANGE IN THE TOTAL COST OF SUPER-SARA

| PERIODS | 1980-1983 | 1984-1986 | 1987-1988 | TOTAL GENERAL |
|---|---|---|---|---|
| Initial evaluation reference ATO 46 , 19 May 1981 | 71,030 | 57,400 | 32,000 | 160,430 Mio.écus |
| Revised evaluation reference CCG 228, 25 March 1982 | 102,350 | 97,007 | 94,582 | 293,939 Mio.écus |
| Variation | + 31,320 | + 39,607 | + 62,582 | + 133,509 Mio.écus |

Note : the updating hypotheses are those in document ATO 46 and CCG 228 respectively.

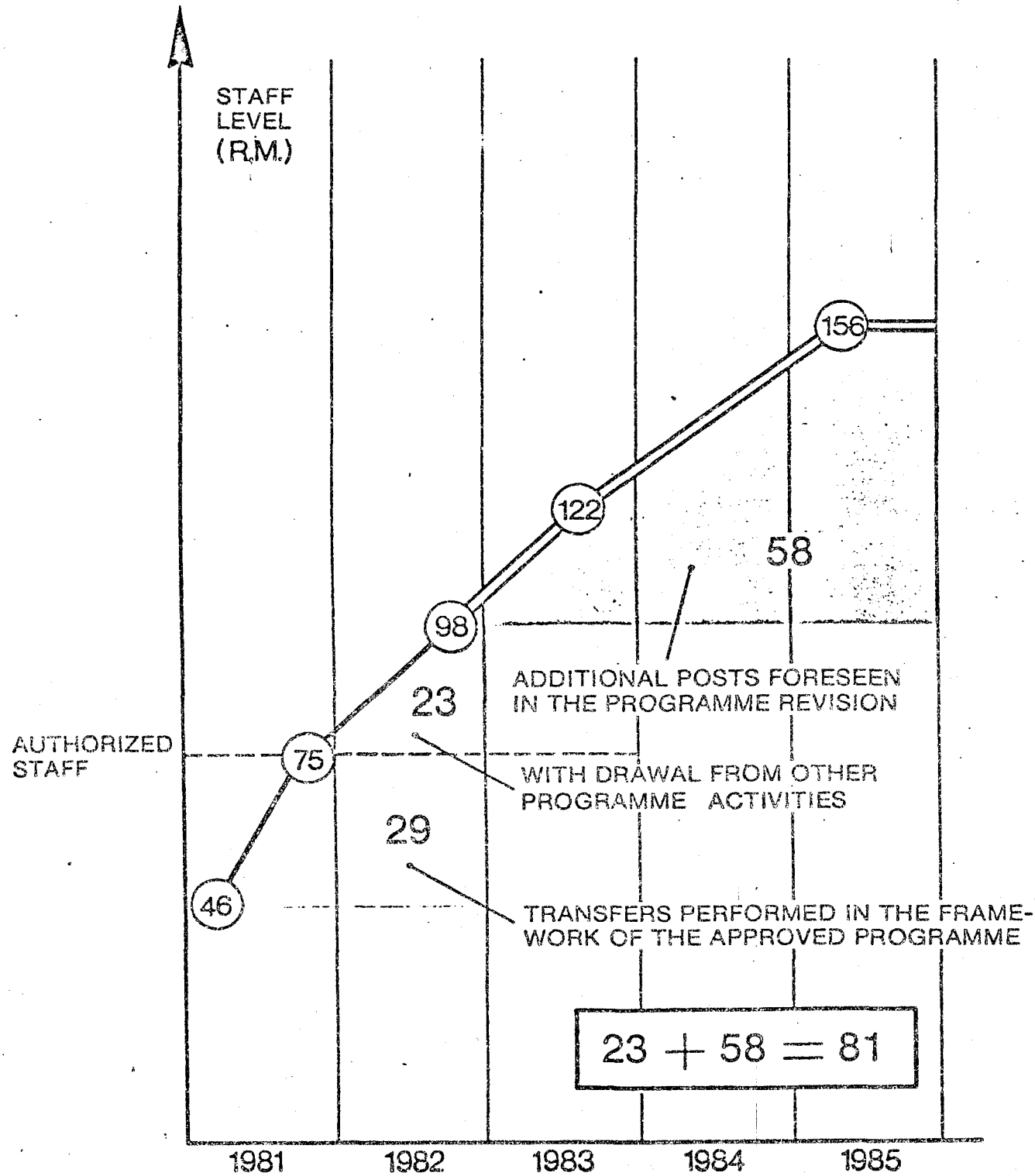
# REORIENTATION OF NUCLEAR ACTIVITIES

(staff level (R.S.))



Annex nº 4

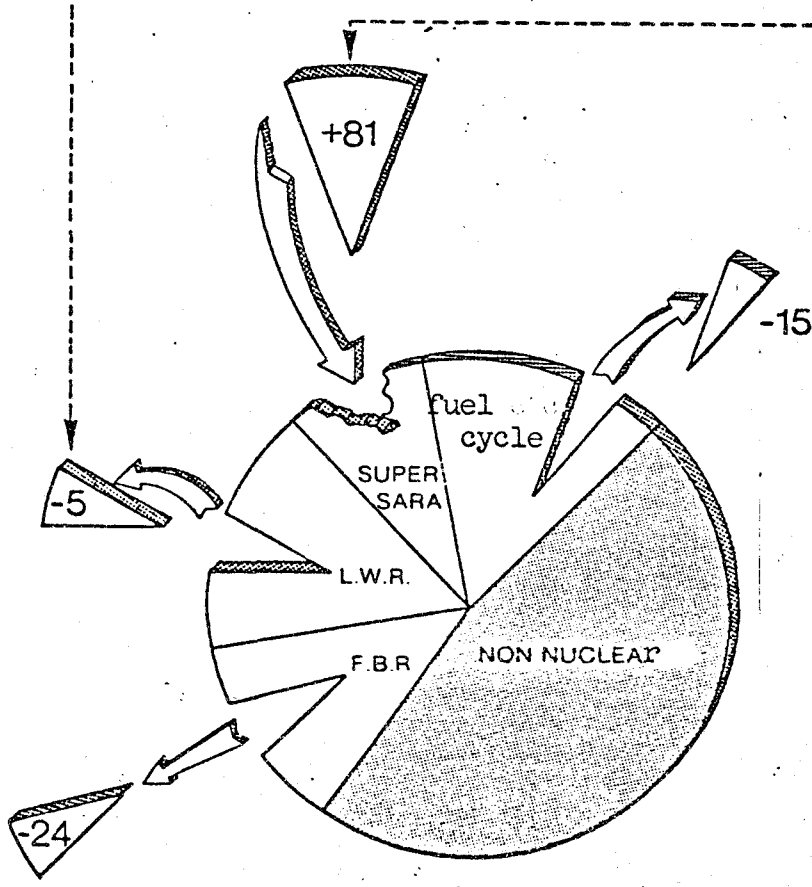
# INCREASE AND FULFILMENT OF THE SSTP REQUIREMENTS



# REORIENTATION OF LWR SAFETY PROGRAMME

(staff level (R.S.))

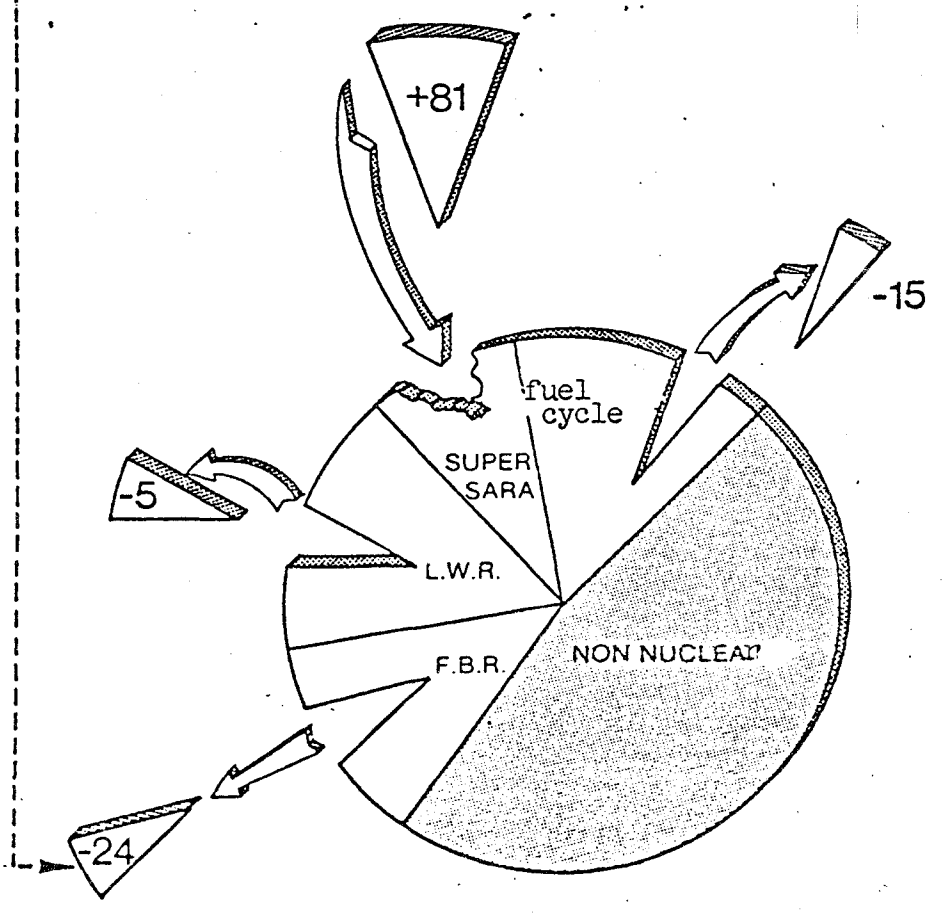
| | Approved | Reoriented | Variation | |
|---|---|---|---|---|
| Super-Sara | 75 | 156 | + 81 | |
| LOBI | 68 | 58 | — 10 | (+ 11 CONTRACTS) |
| RISK AND RELIABILITY | 25 | 27 | + 2 | |
| Primary circuit integrity | 19 | 22 | + 3 | |
| | 187 | 263 | + 76 | |
| Participation in national experiments | 0 | p.m. (in budget) | | |



# REORIENTATION OF THE FBR SAFETY PROGRAMME

(staff level (R.S.))

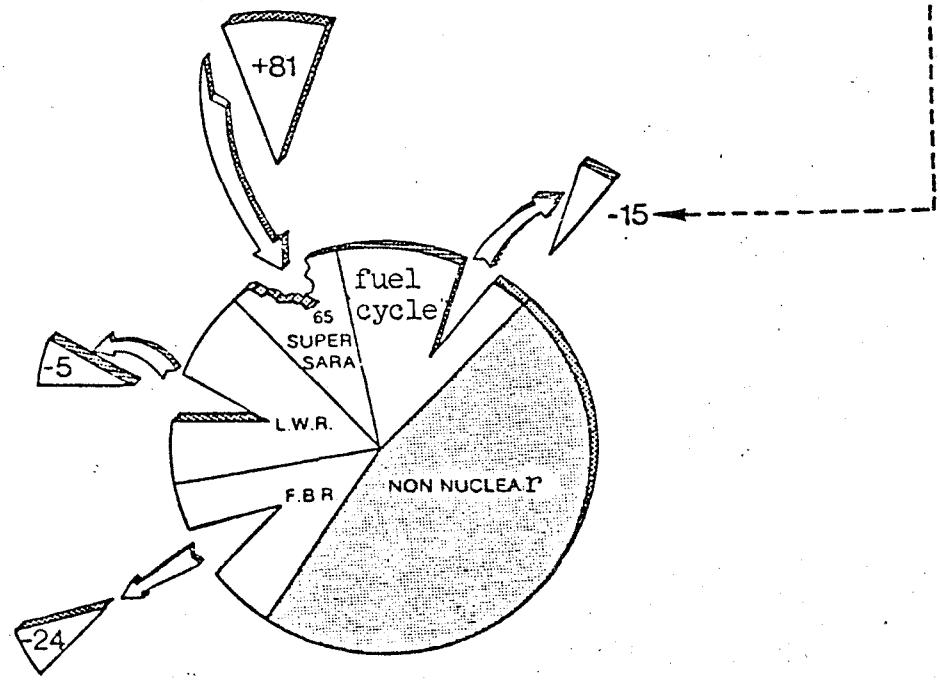
| Activity | Approved | Reoriented | Variation |
|---|---|---|---|
| Pahr + FCI | 47 | 57 | + 10 |
| Primary circuit integrity | 20 | 30 | + 10 |
| Energy release | p.m. | + 10 | + 10 |
| European Accident Code | 8 | 0 | — 8 |
| Primary containement | 22 | 0 | — 22 |
| Sodium | 24 | 0 | — 24 |
| | 121 | 97 | — 24 |



# REORIENTATION OF THE FUEL CYCLE SAFETY PROGRAMME

(staff level (R.S.))

| Activities | Approved | Reoriented | Variation |
|---|---|---|---|
| **Radioactive waste** | | | |
| - risk evaluation | | | |
| - Protecting barriers | 27 | 37 | + 10 |
| - Contineral geological formation | | | |
| - Underwater geological formations | p.m. | | |
| - Actinide separation and surveilance | 25 | 5 | — 20 |
| **fissile material control** | | | |
| - quality criteria | 55 | | |
| - information security | p.m. | 55 | 0 |
| - integration and strategies | p.m. | | |
| **Karlsruhe Plutonium** | 117 | 112 | — 5 |
| | 224 | 209 | — 15 |



ANNEX 8

## Cooperation with USNRC on the Super-SARA Project

Recent discussions with USNRC have indicated that, following budgetary restrictions imposed on this organisation, a certain readjustment of the term of cooperation envisaged so far must be considered.

In the new scheme - which must still be negotiated in detail with the U.S. authorities - the essential modalities would be the following :

- USNRC no longer furnishes test trains for the programme; on the other hand it would supply services in support to the project execution - namely in the area of safety analysis - and access to the relevant know-how;

- USNRC assures free availability of the results from the entire PBF programme, within the terms of the cooperation;

- the Commission places at the disposal of the USNRC all the results from the Super-SARA project.

Although the Commission regrets the reduction of the USNRC supply of harware, it considers that this cooperation remains a significant element of the international cooperation in the field of reactor safety.

Brussels April 28, 1982

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ANNEX 9

ADVICE OF THE GENERAL ADVISORY COMMITTEE

During the meeting of the General Advisory Committee on 28 April, 1982 the Director General of the JRC presented the proposals which aim at :

- the integration of the JRC programme in the overall strategy of Community research and development and the framework programme which is being constructed;
- coming to terms without delay with the shortage of both financial and manpower resources in the conduct of the project Super-SARA;
- maintaining a balance between the different areas of research in which the JRC is working;
- increasing the efficiency of the JRC and improving the impact of its results by a further concentration on current important themes.

The Committee :

1. Whilst regretting that the real situation of this programme execution has been revealed so late, expresses its satisfaction for the quality of the preparatory work which has led to the re-evaluation of the Super-SARA project;

2. Judges that the match between financial and manpower ressources and the programme proposals is probably far more realistic than was the case of the previous Commission proposals;

3. Requests the JRC to examine once more the contents and the balance between the components of the reactor safety programme;

4. Insists that whatever the resources finally made available to the JRC, the should allow the proper exectuion of the approved programmes, taking account of the best estimates of the real needs for this execution.

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Were present :

Belgium : S. AMELINCKX (Chairman), P. DE MEESTER, F. BRAIBANT and M.R. RENIERS / Denmark : N. HANSEN / F.R. of Germany : W. KLOSE / Greece : D. DENIOZOS / France : B. BAILLY DU BOIS, J. GAUSSENS and P. TANGUY / Ireland : C. CUNNINGHAM, B. O'DONNELL and J. GRAHAM / Italy : C. MANCINI and G. CASTELLI / Luxembourg : J. REMOVILLE / Pays-Bas : J.A. GOEDKOOP and A. GEVERS / United Kingdom : G.H. STEVENS, J.B. INGRAM and J. WILLIAMS.

OPINION EXPRESSED BY THE SCIENTIFIC AND TECHNICAL COMMITTEE OF EURATOM CONCERNING THE REORIENTATION OF THE JRC PROGRAMME DURING ITS MEETING OF 30th APRIL 1982.

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The Committee regretted being put in a position to express an opinion on this difficult subject at such short notice which did not give members either time or information to assess in sufficient depth the relative merits of the various components of the total research programme.

However it was the majority view that the Super SARA Project should proceed and it is our strong recommendation in view of the doubts brought about by the changed circumstances in terms of money and manpower that a final decision and authority to commit the necessary manpower and finance be taken at the earliest possible date to maintain the project momentum.

The Committee :

1. Recognizes the technical and financial interest of the Super SARA project for the reactor manufacturers, the utilities and the licensing authorities.

2. Recognizes that the results expected from the Super SARA test programme are complementary to the work going on in other research establishments.

3. While it could not express a quantitative opinion on the resources necessary, however recommends that the Commission use their best endeavours to :

   3. a) limit additional permanent staff as far as possible;

   3. b) draw on external qualified manpower;

   3. c) make use wherever possible of existing manpower working on non-nuclear programmes;

   3. d) avoid reducing unduly the Fast Breeder Reactor programme.

4. Supports in broad outline the proposed rearrangement of the Nuclear Component of the programme.

The Committee expressed concern at the risk to programme and costs of the remaining unknowns and in particular stressed the need for timely completion of the safety case and of the clearance of this with the licensing authority.

The Committee stressed the need to insure that in this area of safety and safety analysis the resources necessary should be made available to the project.

The Committee concluded by stressing the importance for the Community of safe and successfull completion of the Super SARA programme.

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Were present :

Belgium : J. GOENS / France : J. HOROWITZ and J.C. LENY / F. R. of Germany : A. BIRKHOFER and H. TRENKLER / Ireland : C.F. DELANEY / Italy : A.M. ANGELINI, G. CESONI and B. GUERRINI / Greece : M.G. ANGELOPOULOS / United Kingdom : F.W. FENNING, H.H. GOTT, D.C. LESLIE (Chairman) and D.R. LOMER.