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OVERALL CONCEPT FOR THE NEXT MUTIANNUAL RESEARCH PROGRAMME OF THE JOINT RESEARCH CENTRE

(Communication from the Commission to the Council)

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C O R R I G E N D U M

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Cover page :

Read title : "Overall concept for the next multiannual
research programme of the Joint Research Centre".

COMMUNICATION TO THE COUNCIL

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PROGRAMME OF THE JOINT RESEARCH CENTRE

FOREWORD

At its 351st session on 15 and 16 July 1975, the Council decided that the Commission should present, by the end of October 1975, an overall concept for the next multiannual programme of the Joint Research Centre (JRC).

This document describes such an overall concept. It is not a detailed, quantified programme proposal; that will be presented by the Commission to the Council in Spring 1976. What follows is rather an outline, based on a critical analysis of the present instrument, of the JRC's future role in Community research and the direction to be imposed on its scientific and technical activity. The concept as outlined fits in with the objectives, priorities and ways and means for the implementation of a common R&D policy of which the Commission will very shortly apprise the Council.

The document analyses the following points in turn:

- the situation of the JRC at the end of 1975
- the current problems and constraints
- the direction to be given to the new programme
- principles of implementation of the new programme.

1. THE SITUATION OF THE JOINT RESEARCH CENTRE AT THE END OF 1975

1.1 The current JRC multiannual research programme was adopted in May-June 1973, after a long period of crisis. As a result of a compromise, which responds only in part to the requirements of scientific optimization, it must be regarded as a transition programme enabling the JRC to set its activities on a new footing. The programme featured the execution of non-nuclear research projects alongside the continuation of nuclear activities in line with the original purpose of the JRC. The general emphasis was such that the research had a basic, long-term character, so there was no precise definition of the results to be obtained during and by the end of the four-year period.

The programme is broken down into a large number of research objectives (more than 20), whose size in some cases is scarcely above the threshold of efficiency. Table I shows the breakdown of the 1973-76 programme into objectives, together with the number of research workers directly assigned to each objective. This fragmentation must be seen as a device whereby, on the basis of the experience gained during the four years, it will later be possible to select the tasks best suited to the JRC.

The transitional, even probatory, nature of the programme is also reflected in the volume of funds made available to it. The budget for the four-year programme included hardly any investment expenditure; the funds assigned to scientific activity for the purchase of equipment or signing of contracts with outside bodies were reduced to a level of

Table I
JRC multiannual programme 1973-76

OBJECTIVES Ref.	Heading	Decision May and June 1973		Decision of 25 August 1975	
		Staff 1st line total	Budgetary appropriation	Staff 1st line total	Budgetary appropriation
(1) JOINT PROGRAMME					
2.11	Waste processing and storage	40	6 900 000	32	5 512 000
2.12	Plutonium and transuranic elements	63	13 000 000	63	13 000 000
2.13	Materials science	50	8 500 000)	79	13 600 000
2.13	Basic research on materials	29	5 100 000)		
2.14	Hydrogen production	37	6 700 000	37	7 040 000
2.21	Reactor safety	115	21 100 000	122	21 716 000
2.22	Applied data processing	31	6 050 000	31	6 050 000
2.23	Information Analysis Office	27	5 100 000	27	5 100 000
2.24	Central Bureau for Nuclear Measurements	92	20 350 000	92	20 350 000
2.25	Technical assistance to power plant operators	23	6 100 000	23	6 100 000
2.26	Training	10	1 450 000	10	1 450 000
2.27	Use of Ispra-I reactor	15	2 200 000	15	2 200 000
2.28	Tech. assessments in support of Commission activities	12	2 000 000	12	2 000 000
2.30	European data-processing network	4	1 000 000	4	1 000 000
2.40	Research under contract	5	1 850 000	5	1 850 000
2.51	Standards and reference materials	39	6 200 000	39	6 200 000
2.52	Protection of the environment	93	15 850 000	93	15 850 000
2.53	Remote sensing of the earth's resources	4	1 050 000	8	1 420 000
2.54	New technologies	15	3 050 000	15	3 050 000
2.90	Direction and coordination	55	8 100 000	67	10 360 000
2.60	Standards and reference materials (Petten)	-	-	10	1 360 000
2.61	High-temperature materials	-	-	34	3 600 000
		759	141 650 000	803	147 510 000
(2) COMPLEMENTARY PROGRAMME					
4.11	Plutonium and transuranic elements	42	8 650 000	42	8 650 000
4.12	Safeguards and fissile material control	27	5 400 000	27	5 400 000
4.13	Operation of the HFR reactor	-	23 000 000	46	23 000 000
		69	37 050 000	115	37 050 000
-	BIOLOGY infrastructure	-	-	-	-
-	awaiting allocation	20	-	20	-
		828	173 700 000	918	184 560 000
	GRAND TOTAL	828	173 700 000	918	184 560 000

* grand total to which must be added 170 staff for operating the ESSOR reactor (Article 6(c)).

extreme parsimony (8% of the budget, compared with 92% for operating expenditure).

The situation thus created by the 1973 decisions was thereafter to be affected by two significant events:

- first, the two-year-long failure to find a satisfactory solution for the activities of the Petten Establishment; in addition to the situation of uncertainty created at the Petten Establishment itself, this led to delays in the revision of the programme as a whole, which in some cases considerably hampered its implementation, the delayed shutdown of Ispra-I reactor being the most spectacular example;
- secondly, the phenomenon of accelerating monetary erosion, which could not be foreseen in 1973, caused grave political difficulties which impeded rational management of the Centre.

Despite these difficulties and although this analysis of the situation is being made only two and a half years after the belated adoption of the 1973 programme and one year after the gradual introduction of the new management structure at the Centre, the Commission feels that the present programme is being carried out satisfactorily. With the experience acquired it should be possible to make good any shortcomings that are revealed, to run in the structures for the future and to identify the options for a smaller number of research projects with more precisely defined objectives.

The JRC is an instrument characterized by:

- the existence of valuable equipment.

In addition to the reactors ESSOR at Ispra and HFR at Petten and their associated facilities (hot cells, etc.) which represent the major installations, there are:

- a 90 MeV linear accelerator and a 4 MeV pulsed Van de Graaff accelerator at Geel;
 - three large out-of-pile water loops and four out-of-pile high-temperature liquid-metal loops at Ispra;
 - the Medium-Activity Laboratory consisting of a group of hot cells, at Ispra;
 - Van de Graaff type accelerators of, respectively, 1 MeV (protons), 2 MeV (electrons) and 3 MeV (positive ions) at Ispra;
 - a group of 25 laboratories and 20 α , β , γ hot cells at the Institute for Transuranic Elements at Karlsruhe.
- the presence of research teams which are widely acknowledged to be highly competent.

This instrument is at Europe's disposal for an effective contribution towards Community research.

After examining the current programme and the opinions expressed on it by the Advisory Committees on Programme Management set up by the Council, the following conclusions may be advanced:

- the work on nuclear reactor safety is greatly appreciated and is carried on in close collaboration with the national institutes, either via contracts on behalf of third parties (e.g., blowdown research contract for the German Federal Ministry of Research) or by active participation in various groups in the Commission that deal with safety;

- in research on hydrogen production by thermochemical decomposition of water, the JRC plays a front-ranking role and serves as a focal point for international cooperation on this subject;
- the Central Bureau of Nuclear Measurements meets a definite European need for nuclear data and plays an undisputed role;
- the work of the Institute for Transuranium Elements, both on plutonium fuels and on actinides, is highly appreciated in the scientific and industrial circles concerned;
- operation of the HFR reactor and the preparatory work for irradiation experiments meet the requirements of researchers and the reactor's utilization coefficient is constantly increasing;
- work on fissile materials safeguards provides a solid back-up for the Commission's safeguard activities required by the Euratom Treaty;
- despite its originally very modest proportions, work on remote sensing is producing practical results. The JRC was selected as a principal investigator by NASA (National Aeronautics and Space Administration USA) and is extending its cooperation to numerous specialized institutes in the Member States in this field;
- despite some doubts expressed as to the utility of some research on materials, the competence of the research teams involved is widely acknowledged;
- although the shortage of available specialized personnel has slowed the pace planned for research on radioactive waste disposal, the views expressed by the relevant Advisory Committee suggest that this research should be stepped up in close liaison with the indirect-action programmes recently adopted in these fields.

A similar situation exists in regard to the direct-action projects on environmental protection, where close liaison is maintained with the indirect-action project in the same field.
- lastly, direct action in the field of reference substances and standards forms a solid foundation and essential support for the programme of

indirect action on reference methods and materials (CBR).

The Commission considers that this is a positive balance sheet after an extremely short lapse of time. It establishes the utility of the instrument for the future.

2. PROBLEMS AND LIMITATIONS.

In order to draw lessons for the future from the difficulties more specifically associated with the nature of the JRC, the Commission has made a critical analysis of this problem.

The first striking fact is the geographical dispersion of the JRC in four establishments of uneven size - one establishment distinctly bigger than the three others. What is more, two of these establishments form enclaves in larger national structures.

This dispersion undoubtedly harms the intrinsic coherence of the JRC to some extent but, by introducing internal management arrangements ("leader" establishments), the Commission feels it will be able to ensure if not the geographical then at least the scientific and technical coherence and unity of the research objectives; consequently, it does not propose any change in the present geographical distribution of the establishments. Furthermore, recent experience has shown that the slightest attempt to modify the delicate balance between the four establishments leads to major difficulties in discussions at Council level.

The Ispra Establishment, in particular, was admittedly created for a programme different from the present one in character and more substantial in content, which is why it has a large infrastructure that is ill-suited to requirements and would be extremely expensive to rationalize (e.g., regrouping of services, closure of certain buildings, etc.). On the other hand the introduction of new activities of significant magnitude on the Ispra site, alongside even a reduced JRC programme, should bring more rational utilization of the existing infrastructure. Thus, in addition to the numerous technical advantages offered by the site for accommodating the JET project (Joint European Torus), the presence of this machine at Ispra should permit this rationalization and allow significant savings through the combination of two programmes.

The question of different treatment of certain groups of personnel at Ispra is one that will have to be solved. A solution should ensue from the new JRC staff regulations, which the Commission expects to present to the Council in the very near future. The Commission's efforts in this direction have been recognized, and have brought social peace to the Ispra Establishment.

There is also the problem of mobility of the Centre's scientific staff, as in practically all research organizations; a staff renewal process, limited in scope but steady in pace, seems essential to ensure the continuance of creativity and necessary adjustment to evolving research requirements. The new JRC Staff Regulations ought to provide the right answer.

3. THE GUIDELINES FOR THE NEW PROGRAMME

3.1 The JRC's role

Since the JRC is an establishment required under the terms of Article 8 of the EAEC Treaty, its liquidation, as well as entailing heavy costs, would necessitate amendment of the Treaty; nevertheless it is neither the fact that this tool exists nor the legal provisions that prompt the Commission to put forward a new programme for the Joint Research Centre.

It is the services which this tool, and sometimes this one alone, is capable of rendering which persuade the Commission to entrust the JRC with a role, perhaps modest in compass yet essential by its nature, within the Community research effort.

What is that role?

- First, through its own research activity, to act as the focal or crystallizing point, the catalyst for actions coordinated on the Community scale, in close association with the appropriate indirect-action programmes.

Intercomparison of the techniques, materials and equipment developed in the national institutions or in industry illustrates this task; the programmes covering standards and reference materials

and high-temperature materials follow this trend.

The performance of research tasks which, although not requiring exclusive facilities nevertheless by their nature require centralization, or even exclusivity, is a similar kind of duty; a few examples in this area are the Central Bureau for Nuclear Measurements, the specialized data banks and the information analysis services.

- Secondly, to pursue, in the form of direct-action projects, research activities of a central nature. An example is the installation, on the Establishment sites, of large machines or experimental facilities, a proliferation of which would be out of the question but to which everyone should be guaranteed access.

- Thirdly, to conduct research wherein a certain independence of judgment, deriving from non-participation in industrial developments which involve major economic interests, is desirable if not imperative: an example of this is the urgent, international-scale topic of nuclear safety.

- Finally, to support Community sector policies by maintaining the Community's own research expertise within the Commission and to apply its expertise and support, as and when the need arises, to the shaping of new policies. Here again, the link with indirect action must be kept close. The activities in the areas of environmental protection, of solar energy - more particularly the work that could be slanted towards aiding developing countries - of hydrogen production, of radioactive waste disposal and of safeguards fit this bill.

These four possible facets of the JRC's role - of which, incidentally, no one excludes another - must serve as criteria for establishing the new JRC programme.

Of the research projects fulfilling these criteria, priority in adoption will be given to those which efficiently use the Centre's existing capabilities. The programme cannot be devised solely on the basis of what exists, and no more can it be built up with a disregard for the intellectual and physical potential which is at present available.

3.2 The broad lines of the programme

The programme puts emphasis on research in the fields of energy and environment and thus reflects the importance of these two sectors in the overall policy of the Community.

In the energy sector one sees coal-mining research, technological developments in the hydrocarbon fuels sector, research linked to all aspects of the use of nuclear fission energy, and the development of new energy sources. The first two of these sectors are outside the JRC's current field of competence but, conversely, its contribution in the other sectors can be important.

It is proposed that the new programme on conventional nuclear energy should embody projects covering:

- nuclear safety;
- advanced plutonium fuels and actinides;
- management of nuclear materials and radioactive waste.

The nuclear safety research work meets an increasingly urgent need arising from the accelerated development of power stations and the anxieties expressed thereon by a section of public opinion. Activities will be mainly concentrated on the light-water and fast breeder reactor concepts and priority will be given to work centred on experimental facilities (cut-of-pile loops and, where applicable, in-pile loops) as well as to correlative and comparative studies of work performed

outside and coordinated at Community level, in particular the experimental validation of computer codes and the comparison of the national methods of assessing nuclear hazards.

The question arising in the case of work on advanced plutonium fuels is one of striking the balance between applied research on the problems raised by the development and use of new nuclear fuels and research both fundamental, on identifying the properties of the actinides, and applied, on the particular role of actinides in radioactive waste.

An important facet of the safe and efficient use of nuclear energy is the processing and disposal of radioactive waste. The adoption recently by the Council of a broad programme of indirect-action projects indicates the measure of importance attached to this topic. Direct-action back-up for this programme is warranted by the Commission's need to maintain expertise in order to contribute effectively to the adoption of Community solutions to the problems that arise.

The application of nuclear energy to purposes other than that of generating electricity gets increasing attention. If one considers only the high-temperature (say, beyond 800°C) applications, it is evident that many problems still arise with materials. The role of the JRC in this field should be that of a forum, a crystallizing point for Community work on the subject, and a central testing facility available to industrial interests could suitably be placed there.

This heading also covers the work on hydrogen and, in particular, its production through thermochemical decomposition. The leading role assumed hitherto by the JRC should be confirmed in the wider context of the programme of indirect projects in the energy field approved by the Council in July 1975. A first laboratory demonstration facility which would be the forerunner of a pre-industrial design concept is envisaged. The validity of the processes envisaged must be quantified by means of technical and economic studies, and a broad exchange of information is ensured in this area through international collaboration.

One of the priority research objectives, still in the field of energy, is the development of new energy sources, i.e., thermonuclear fusion, solar energy and geothermal energy. Although the last-named topic must be ruled out from the JRC owing to the fact that there is no particular experience there in the matter, conversely, a contribution to the other two topics can be conceived.

As to solar energy, in contrast to current activities which are definable as exploratory and covering a wide range of applications, the work will concentrate on one or two topics where the central role of the JRC is of particular importance, namely, the intercomparison of solar energy collectors, a contribution to the development of a measuring network, etc. Applications likely to interest the developing countries will be given special attention; in particular, collaboration in the context of the Euro-Arab dialogue is at present under study.

Potentially, one of the most important energy sources of the future is thermonuclear fusion.

There are two kinds of JRC participation to be considered:

- the first is based on the assumption that the JET device will be sited at Ispra, in which event the JRC would, in support of the programme of indirect projects, assign to the project team a staff of about 100, reducing the number of staff employed directly on its programmes by a like amount and, out of the local infrastructure, would also furnish the appropriate support facilities (workshops, security, welfare services, European School, etc.);
- the second is tied to the initiation, within the JRC itself, of a new activity covering the technology of fusion reactors and, more particularly, studies of materials; the siting of an intense neutron source, regarded as a necessity for such studies, on the Community site would clinch this central role of the JRC. This new activity would be accompanied by further conceptual studies on fusion reactors carried out by the JRC for the benefit of the Associations.

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Protection of the environment is a high-priority objective of Community research. The JRC can provide a selective contribution of support which fits into the framework of indirect action and the proceedings of the competent departments of the Commission. This contribution will focus essentially on energy ecology, i.e., it will be a multi-disciplinary study of the principal problems stemming from the impact of energy sources on the environment.

The application of remote-sensing techniques to pollution problems will be dealt with under a project linking several institutes in the majority of Community countries. The applications of remote sensing in fields other than that of pollution will continue to be given attention, especially in agriculture where a pilot experiment of application to regional problems is being designed (measurement of soil moisture content in the agricultural areas regarded by the Commission as less-favoured).

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A need unanimously acknowledged at Community level is that of the development of reference measurements, standards and techniques, both nuclear and non-nuclear.

The Central Bureau for Nuclear Measurements will pursue its work in the nuclear field and, whilst a certain drop in the level of activity is foreseeable in the long term, the demands currently remain high. In the non-nuclear field, the various JRC establishments will play a support role to the CBR indirect action and, through their own research work, will serve as a buttress for a number of activities pursued in the national laboratories.

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The skills which the JRC acquires through its research projects should be made available to outsiders. Therefore, a fair volume of service activities must be expected. There will be provision under this heading for providing some capacity for studies in support of Commission activities and this nucleus, capable of responding to the various demands from the other Directorates-General and Services of the Commission, will in particular require to be knowledgeable in the field of systems analysis. Included in the new programme will be the performance of selective activities in the data-processing field, more particularly those connected with program libraries, software engineering, data bank methodology, and participation in the European data-processing network and the creating of the Community scientific and technical information network. The JRC will continue its action in the training sector by holding specialized courses both at the Centre itself and outside, and by receiving trainees and scholarship holders. It could make a substantial contribution to any action the Commission might take in this field to help the developing countries.

Lastly, the JRC will undertake the tasks involved in the operation of the ESSOR and HFR reactors. It is intended that operation of the ESSOR reactor should continue under the terms of Article 6(c) of the Euratom Treaty, whilst operation of the ESSOR reactor - if it cannot take the form of a joint programme - would be continued as a supplementary programme; special care should be taken to ensure that these installations are used as widely as possible by the Community.

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To sum up, the new JRC programme would present the following picture: six broad themes subdivided into ten programmes, each comprising a limited number of projects. This breakdown is illustrated in Table II.

With the guidelines which will be issued by the Council on the basis of the concept outlined above, the Commission feels that it will be able to bring about a radical transformation in the work of the JRC by proposing a programme that deliberately differs from the current programme in concept, substance and management.

TABLE II

BREAKDOWN OF ACTIVITIES IN THE NEW JRC MULTI-ANNUAL PROGRAMME

Fields	Programmes	Leader
(a) <u>Conventional nuclear energy</u>	Nuclear safety	Ispra
	Research on Pu fuels and actinides	Karlsruhe
	Management of nuclear materials and radioactive waste	Ispra
(b) <u>Applications of nuclear energy other than electricity generation</u>	High-temperature materials	Petten
	Hydrogen	Ispra
(c) <u>New energies</u>	Solar energy	Ispra
	Technology of fusion reactors	Ispra
(d) <u>Environment and resources</u>	Environment and resources	Ispra
(e) <u>Reference measurements, standards and techniques</u>	Reference measurements, standards and techniques	Geel
(f) <u>Service activities</u>	Service activities	Ispra
	HFR reactor	Petten

It should be noted that, under the new proposal, fundamental research is no longer an autonomous activity. It is nevertheless necessary to maintain a reasonable proportion of basic research at the JRC as an accompaniment to the main programmes. This will be financed with about 10% of the total resources allocated to the programmes specified.

Moreover, in the interests of internal cohesion at the JRC and optimum use of available resources, there must be greater interlinking of the activities of the various JRC Establishments; with this in view, the new draft programme will introduce the concept of a "leader Establishment", whose task will be to provide the technical and scientific leadership in a specific field throughout the programme. The leaders are also listed in Table I.

3.3 Programme duration; sliding programme

It is proposed that the next JRC multiannual programme should run for a term of four years like the present programme.

For the forthcoming programme the Commission proposes introducing a sliding programme which it conceives as follows:

The programme adopted for a firm and irrevocable period of four years will be submitted for revision by the Council during its third year of execution; at the same time a new four-year programme will be adopted by the Council so that the final year of the initial programme will become the first year of the new programme. The new one will itself be submitted for revision during its third year and a simultaneous decision be taken on the following one. If no decision were taken on a new programme and the revision of the current one, the programme still under way would continue to be executed according to the Council's original decisions.

The three-year frequency was chosen by the Commission to allow for the irreducible length of time required by the programme decision-making process and the budget machinery.

This arrangement should ensure that JRC programmes are adapted to research policy trends and that greater continuity is achieved in the work undertaken.

3.4 Size of the new programme

An initial evaluation of the resources needed for the programme described under point 3.2, taking into account not only the manpower needed but also the range of qualifications required, produces the following breakdown, expressed in the number of research workers directly assigned to the programmes:

<u>Conventional nuclear energy</u>	<u>Research staff</u>
- nuclear safety	170 - 250
- Advanced plutonium fuels and actinides	100 - 120
- management of nuclear materials and radioactive waste	60 - 90
 <u>Application of nuclear energy for purposes other than electricity generation</u>	
- high-temperature materials	40 - 50
- hydrogen	40 - 70
 <u>New energies</u>	
- solar energy	20 - 40
- fusion reactor technology	70 - 100
- (secondment to JET project)	100
 <u>Environment and resources</u>	 90 - 130
 <u>Reference measurements, standards and techniques</u>	 130 - 160
 <u>Service activities</u>	 80 - 150

Merely addition of the foregoing figures shows that more research workers are needed than are at present available at the JRC. The Commission believes that it should restrict its proposals to the staff strength currently authorized, namely, 1888. The Commission proposes to use this as the basis for the necessary adjudication between the various programmes in the light of the guidelines provided by the Council.

Estimates of the funds needed to implement the new programme would mean authorizing a budget for the new four-year period in the order of

390 million u.a., expressed in monetary values as at 1 January 1977.

This figure includes:

- expenditure in respect of the staff mentioned above;
- an increase in appropriations for the purchase of equipment or the conclusion of outside contracts;
- a sum of the order of 30 million u.a. for major scientific investments.

If the provision of these 30 million u.a. for major investments, the details of which will depend entirely on the nature of the programmes finally approved, is left out of account, it must be realized - and the Commission is at pains to stress this point - that if it is desired to cut down the total permissible expenditure without jeopardizing the normal scientific work and the management of the Centre, the only way to do so is by reducing the number of authorized staff.

A problem causing great concern is that of guaranteeing implementation of the programme adopted despite the erosion of monetary values which is now rampant in the Community.

To avoid a repetition of the difficulties encountered in carrying through the present multiannual programme, the budgetary effects of changing economic conditions on the cost of the programme will be re-examined annually by the Council.

4. PRINCIPLES FOR IMPLEMENTING THE NEW PROGRAMME

4.1 Setting up a new JRC programme concentrating on a small number of major projects should facilitate efficient management. In addition, the measures taken to streamline and improve the working of the Centre during the current programme will be continued. Among the most important of these may be said to be:

- the introduction at the Ispra Establishment of a matrix management structure in which the conventional division into specialized departments is topped by a Projects Directorate in which a small number of responsible officials attend to the management of research

projects through the specialized Departments;

- rationalization and simplification of internal procedures on the financial level and with respect to contracts. A revision of the present form of the operating budget will be applied within the frame of the new programme;
- as regards the content of the next programme, a special effort will be devoted to precise definition of the purposes of the activities to be undertaken. A better balance than in the past between long-term research (basic research, of a fundamental nature) and short or medium-term research (research which should normally produce a concrete result or a development in the course of a four-year programme) should facilitate this defining process. In the same context, particular attention will be paid to optimum utilization in industry of the results achieved.

Each programme will thus be assigned a timetable with "milestones", and possibly phases, producing clearly identified results at the end of a programme. On the administrative level, this should take the form of strict application of project control procedures (the PERT - Programme Evaluation and Review Technique - procedure, for example).

4.2 Close, efficacious liaison with the bodies appointed by the Council or the Commission is vital to the success of the next programme. These are the bodies through which a continuous dialogue should be maintained between the competent bodies and institutions in the Member States and the JRC.

In this connection the Commission attaches particular importance to the role of the Advisory Committees on Programme Management. Such committees, responsible for both direct and indirect action projects - where these co-exist - guarantee the cohesion of the researches carried out. In addition, these committees have a part to play in the search for greater coordination with the actions carried out at national level.

Table III indicates the structure proposed for the ACPM's for the new multiannual JRC programme. It should be noted that half of these Committees are shared with the indirect-action projects, a fact which should meet concern about cohesion of the two types of action. As the number of these Committees and their fields of competence have been reduced, they ought to consider setting up specialized panels.

The ACPMs, however, deal only with limited areas of the JRC's overall activity. The General Consultative Committee, on the other hand, which was set up to advise the Director-General of the JRC, has an overall view of JRC problems. Its role is particularly valuable; to ensure its full effectiveness, closer liaison than in the past should be maintained between the General Consultative Committee and the ACPMs, more especially as regards execution of the direct-action projects.

The Commission has already expressed its wish that the JRC's activities be more closely integrated into the wider framework of Community research and evolve in line with the needs of that research. The Scientific and Technical Research Committee (CREST) is pre-eminently the body to maintain the necessary consistency in this field. As regards JRC activities carried out under Article 7 of the EAEC Treaty, the Scientific and Technical Committee must continue the outstanding role conferred upon it by the Treaty.

5. CONCLUSION

The Commission invites the Council to give its opinion at an early date on the guidelines set out in this communication.

TABLE III

STRUCTURE OF ACPM'S IN THE NEXT MULTIANNUAL PROGRAMME

1. <u>Nuclear safety</u>	ACPM direct action project
2. <u>Research on plutonium fuels and actinides</u>	ACPM direct action project
3. <u>Management of nuclear materials</u> (section on treatment and storage of radioactive waste)	ACPM shared with indirect action project "Treatment and storage of radioactive waste"
4. <u>High-temperature materials</u>	ACPM direct action project
5. <u>Hydrogen production</u>	ACPM shared with indirect action project
6. <u>Solar energy</u>	ACPM shared with indirect action project
7. <u>Fusion reactor technology</u>	Liaison Group on "Fusion"
8. <u>Environment and resources</u>	ACPM shared with indirect action project "Environment"
9. <u>Reference measurements, standards and techniques</u>	ACPM shared with CBR indirect action project
10. <u>Service activities in the data processing sector</u>	ACPM direct action project
11. <u>HFR reactor</u>	ACPM direct action project