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Information R+D

SERIES: RESEARCH AND DEVELOPMENT

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TOWARDS A JOINT RESEARCH AND DEVELOPMENT POLICY FOR EUROPE

For the EEC Research and Development is a necessity

Economic progress and social well-being in the member countries was one of the pretexts for forming the EEC and is still one of its chief aims.

From the outset, of course, the European Community has been concerned with Europe's R&D problems for the sake of setting up Europe's own scientific backcloth against which economic expansion can play its natural part as the source of social progress, guaranteeing some degree of technological independence vis-à-vis other leading nations. In more definite terms R&D had, and always has, an essential part to play in European affairs:

- as an instrument for dealing with the important social and economic problems with which Europe is faced;
- as an essential source of the technical progress indispensable in the economic growth which conditions both social progress and cultural development;
- as a way of developing the exact, the social and the humaner sciences and thus contributing to enhance Europe's cultural identity and influence in the world; and
- as a contribution to the integration of nations in the European Community.

It is thus certain that, ambitious though the task may seem, Europe ought to go ahead with a joint R&D policy. But has Europe the means for doing this? And indispensable as such a policy may be at the Community level, might it not be seen as rather a nuisance on the national footing? To both questions the answer is positive; and this is in itself yet another argument in favour of a joint R&D policy. The EEC has a very big scientific and technical potential; but this is widely dispersed and agled on dealing with the national requirements of the member countries which do not fall into place in the wider Community concept. This great potential available cannot be fully effective unless the individual possibilities are brought together and co-

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ordinated by a joint scientific and technological policy. This would enable the member countries :

- to eliminate useless duplication and thus make better use of the funds available ; and
- thus to take the best advantage of their resources in men and materials;
- and to tackle problems and have the benefit of solutions which would be difficult or impossible on the national scale.

1958-74 -- THE LONG ROAD

It has been a long and toilsome road that this quest has followed for 20 years or more,and the need is still far from being satisfied. Yet there have been occasional cases of joint action and joint programmes. Little by little Europe's policy of research and development is coming into existence.

The first steps in R&D activities date back to the fifties,beginning with the ECSC (1952),which was followed by Euratom (1958) and on a smaller scale the EEC. It was only a partial approach,limited to specific sectors defined in specific treaties. Nuclear research was covered by the Euratom Treaty; article 41 of the EEC Treaty was a sponsor of research in agriculture; and for research in steel and coal the ECSC Treaty provided not only encouragement, but funds of its own to finance it. Apart from this,however, the EEC Treaty provides no real base for a european policy in science and technology. Thus it is that the beginnings of research and development programmes,put in hand by the EEC under the treaties signed in Rome,have been specific and uncoordinated. The accent has been on nuclear energy (the Euratom Community) ; and apart from this,there have been research projects on a more modest scale in matters to do with coal and steel (the ECSC).

The essential aim of the Euratom Community ("The European Community for Atomic Energy")was to establish a state of things in which the nuclear industry could be quickly brought into being and encouraged to grow,by the operation of Community research and development programmes on a big scale. The work began with a flourish of trumpets,but soon it was having to deal with ever -increasing difficulties. In the mid-sixties it was clear that the objectives of Euratom were unattainable in the political context of the period. This was the beginning of the Euratom crisis,and the crisis of the Joint Research Centre which had been set up in virtue of the Euratom Treaty. There were costly investments which could not be utilised and the effectiveness of the work quickly dwindled. The outlook for the future seemed highly doubtful.

In this period it was noticed that a change began to appear in the national research and development policies. Governments and public opinion were criticising the imbalance in the national policies and the way they were concentrated on special and prestige projects -- space,nuclear energy and defence -- resulting in the neglect of sectors highly important to society,such as environmental protection,social research,medicine and new modes of transport. For the first time big social strata became aware of the inadequate provision made available in terms of men,money and material.

These problems were felt in greater or less degree in all the industrial countries of the West. In the countries of the European Community they induced a certain solidarity of interest,one effect of which was to bring them closer to a more general policy. The first definite step in this direction came in April 1965. It came from the medium-term economic policy Committee,which set up the PREST group (Scientific and Technical Research Policy -- French initials) which embodied a plurilateral approach to the problem. PREST proceeded to compare the national R&D policies and proposed measures aimed at enabling a Community policy to be worked out. The PREST report in 1967 emphasised the necessity for linking the national R&D policies with the requirements of industry and coordinating the national policies with one another,so as to have a basis for a Community R&D policy. This can be regarded as a first result; but it was limited to the strictly economic aspects which,coupled with the slow procedure involved,resulted in its being less successful than might have been expected.

Through the action of PREST there was increasing cooperation rather than coordination in a number of scientific and technical fields,such as computers, telecommunications,transport,oceanography,meteorology and pollution. In 1971 an agreement was reached by which the EEC and 10 other european countries were to engage in joint projects. This brought into existence a new group known as COST,which then put seven specific programmes on foot.

In June 1972, the idea of a joint R&D policy was given renewed impetus by the Commission,when it published the first proposals for a joint scientific research policy and european technological development programme,based on a schedule of proposed Community measures with an annual expenditure schedule of 120 million units of account. This project,however, did not secure the agreement of the member countries which were unwilling to commit themselves on the basis of article 235 of the Treaty of Rome.

THE PARIS SUMMIT : BEGINNINGS OF A JOINT R&D POLICY

Nevertheless, the idea of a joint policy was far from dead. In October 1972, following the successful completion of negotiations for the enlargement of the European Community,the heads of State or Government adopted resolutions in favour of developing a joint science and technology policy which was to be secured by coordinating the national ones , coupled with the joint handling of specific projects of Community interest. In the summer of 1973,the EEC followed up this resolution by submitting to the Council of Ministers a series of definite proposals. Stress was laid on the need for a schedule of priority programmes,based on making use of the national potentials and defining the scientific targets by reference to economic and social requirements. These requirements were concerned with all sectors of research and technology except for defence research and research covered by confidential industrial information.

These proposals were examined by the Council of Ministers and in January 1974 they approved four resolutions aimed to promote the gradual development of a joint policy in science and technology. They were concerned with :

- Coordination of the national policies and definition of objectives and programmes of Community interest ;

  - establishing links with the European Science Foundation,which was then in course of formation ;
  - a programme of research projects ;
  - a programme of measures regarding forecasts,evaluation and methodology.

Following the first resolution,the PREST group was replaced by the CREST Committee (Committee for Scientific and Technical Research -- French initials). This committee's principal task is to advise the Commission and Council regarding joint R&D activities and the coordination of the national research policies. The task implies the definition of joint Community projects,the choice of the best way of handling them,the organisation of scientific consultation and contacts,the transmission to the EEC Commission of the necessary "national" information and the identification,analysis and comparison of the national objectives. CREST met for the first time in February 1974,and has since been meeting almost every month. It has now a number of achievements to its credit,more especially in promoting work of Community interest (e.g. scientific and technical information and new sources of energy) and in the outline plan for Community coordination,which includes both horizontal coordination (statistics,indicators and budgets) and vertical coordination (e.g. energy and medical research). Helping in this work have been various specialised sub-committees :

- the Committee for Scientific and Technical Information and Documentation (CIDST) - (French initials) ;
- the Committee for Medical and Public Health Research (C.R.M.);
- the Energy sub-committee ; and
- the Data-processing sub-committee.

In conformity with the second resolution of 14 January 1974, special links have been set up with the European Science Foundation,which embraces some 40 scientific research organisations from 16 european countries,including the nine EEC members.

In virtue of the third resolution,the EEC has drawn up a first programme of work outside the field of nuclear energy,and in November 1975 objectives and priorities were laid before the Council. There were two underlying principles :

- to fit in with the targets laid down in the various sector policies (i.e. agriculture,energy and others);
- to help in defining new policies the Community would wish to discuss (e.g. raw materials,town-planning etc.).

Lastly,under the fourth of the resolutions of 14 January 1974, the EEC embarked on a feasibility study,known as "Europe + 30",aimed to show the value of a Community instrument of forecasting and technological evaluation,and so determine how,if such an instrument were deemed useful, it would be possible for the forecasting and evaluation to be handled. This study was completed at the end of 1975,and may well have an interesting sequel.

In 1973,too, the Commission had set up the Research and Development Committee, CREST. It consisted of 21 independent personalities in the worlds of research,university and industry,its chief task being to advise the Commission in working out its research programmes and in preparing a joint european R&D programme. The organisation of discussions between the European Community and the 10 neighbour States in Western Europe, is a matter for the COST committee, which is confirmed as the main forum for inter-european scientific dialogue. It is in the COST framework that the government representatives of these 10 countries meet -- the nine countries of the European Community and the Commission -- to talk over the cooperation projects between the Community and the countries concerned,put them into shape and advance them to the stage at which an agreement can be made.

Little by little,the idea of a joint R&D policy has thus made headway inside the Community,the infrastructure has been set up,resources made available and the concept of R&D defined. During 1976,therefore, we can make an initial summary of the sustained effort which has been put into the task of setting up a european R&D policy.

PROGRESS SO FAR

One of the first tasks was concerned with coordination; but what does coordination mean and what might be its objectives ?

- An important item in coordination is the joint analysis of the R&D objectives in the member countries,the choices they have made and their priorities,their programmes,projects and expenditure budgets. This running analysis should make it possible for the scope and necessities of cooperation to be identified in good time,make it clear how far action by the Community is necessary and desirable, indicating the usefulness of the R&D measures being synchronised or dovetailed and sending out the relevant recommendations to the member States and to the Community.

The other elements in the methods of coordination include :

- examination,comparison and discussion of projects and programmes in specific sectors such as (for example) energy research and medical research).

The aim of these comparisons is to survey all the national and Community R&D programmes in the field concerned,analysing them and if necessary issuing recommendations aimed to secure the best results.

When,however, it comes to the coordination of national policies and the rational selection of joint objectives, the necessary work has still to be done. It must be emphasised that it is a task made difficult by a number of major obstacles :

- the national R&D policies are complex,very diverse and the manifold national approaches or structures prevent any simple definition of the joint ways and means for a european R&D policy;
- it is not always clear that those responsible in the member countries are really anxious to develop joint responses to joint problems;

- lastly,the EEC institutions have difficulty in playing their part,except merely a role of catalysis,because of the funds at their disposal. The total money used for R&D in Europe today (1976) is as much as 11 500 million u.a (from public financing); but the Community as such has less than 2% of this amount for promoting joint action.

Nevertheless, a beginning has been made with at least two pilot experiments in the comparison of plans and programmes. These are in energy research and medical research. They should lead,by the end of 1976, to definite proposals for concerting the national policies in these two fields. Moreover, two further pilot actions are in progress relating to the comparison of budget forecasts and the definition of research and development indicators,designed to provide a better appreciation of trends and developments in the research policies of member countries. In this we are dealing only with new instruments of co-ordination,but they should enable CREST and the Programme Administration Consultative Committee to tackle this complex task of coordination in the best possible conditions.

When it comes to the Community's own research programmes,direct or indirect, the results have been more positive and the future prospects are more encouraging. Beginning with the nuclear research programme,which was the origin of the joint research centre (JRC) a number of Community research programmes have been developed. Though Euratom was perhaps less successful than had been hoped, it nevertheless played an important part in regard to fusion,radio-biology,reactor safety,nuclear measurements and hydrogen. This collection of research programmes cost 900 million u.a.spread over the period 1958-72,and 184 million u.a. for the direct action in 1973-76,during which the JRC ceased to be confined to nuclear research and took a hand in fields such as energy,the environment,industrial research and initiated a "services" campaign concerned with information and a joint reference bureau. The importance of the ECSC researches calls for special emphasis,because one of the factors affecting it has been the provision in the ECSC Treaty of independent funds for coal-steel research. In 1974,for example, 18 m u.a. was provided for research programmes and applied,for the most part, on technical aspects of the coal and steel industries,or on the social and medical side. In 1975 provisions were more than twice as big,amounting to a total of 41 million u.a. Under the EEC Treaty,research in the early stages related only to agriculture because of the article 41 provisions; but since 1973 the work has spread into environmental studies,reference materials and new sources of energy. The following programmes all extend over several years, between 1976 and 1978 or 1979-80.

- R&D on energy	59	million u.a.	(4-year programme)
- agriculture	16	" "	(5 years)
- scientific and technical information	7	" "	(3 years)
- strife against poverty	5	" "	(2 years)
- the environment	16	" "	(5 years)

THE EARLY FUTURE : 1977 - 80

Conformably to the resolution of 14 January 1974, four sectors were recently proposed as requiring priority treatment at the Community level -- material resources,the environment,industry and the way of life.

The EEC has,accordingly worked out a new framework for Community research programmes between now and 1980. It is motivated by the four types of target set :

. to improve the security of supply of material and resources to the EEC ;

. environmental protection;

. better living and working conditions, collective organisation ;

. help for the development of industries,especially avant-garde industries.

Having regard to these targets,the joint R&D policy would be developed for the most part in the following sectors : energy,agriculture,raw materials, the environment, data-processing,aeronautics and way-of-life studies (social, medical and biological research,transport,town-planning and urban development). The outlay called for by this collection of programmes over the 1977-80 period would be 1 300 million u.a., a major part of which would be for energy studies.

Thus 1976 marks an important stage in the progress towards a real joint R&D policy for Europe,both on the medium and on the longer-term. Moreover, apart from the programme described above :

- in the course of 1976,the EEC will have to make up its mind about the CREST experiments, assessing the effectiveness of the procedures used,rounding off the mechanisms and so laying the main lines of a policy relating to science and technology. Methods of comparison,consultation and the framing and execution of programmes could be improved in the same context;

- a new pluriannual Joint Research Centre programme will come up for approval. This covers the period 1977-80,and puts the main accent on three aspects -- energy research,environmental research and service activities. The cost,spread over four years, is put at 374.4 million u.a.It puts the joint research centre into its specific role in the joint research programme,by handling campaigns of general european interest,developing the concept of Community public service and providing expert scientific and technical backing for the work of the EEC. Moreover, scientific discussions between the JRC and the member States will run extremely deep.

CONCLUSION

The adoption of such a framework for the medium-term,would undoubtedly be a further step towards a common policy,pending the submission to Council of proposals on more ambitious lines,such as a first schedule of research campaigns integrated between the Community and its member States for the period after 1980. For this purpose, of course, long-term objectives would have to be laid down,using as their basis a clear-cut forecast of Europe's future. If the Community is to be able to define and choose between long-term scientific and technical objectives, it must carry on with its primary and permanent function of forward-looking analysis and technological evaluation. To deal with this requirement it now has before it the conclusions of the "Europe + 30" study,which gives it an advance idea of the measures and methods it may have to use for the purpose. The Commission will shortly be submitting to Council a proposal that it be given the resources needed for drawing up a long-term joint R&D policy,which will take into account and bring into a single project all the requirements and all the possibilities of the Community.

A further stage will then have been completed towards the setting up of a real Community R&D policy. It must be remembered,nevertheless, that such a project cannot be brought to fruition overnight. We can now be optimistic about the future,but many years will still be necessary before such a policy can be brought into operation. It will be built up stage-by-stage,steering round the rocks and reefs of national structures and private interests,while conflicts of competence,ingrained resistance to change and recurrent misunderstandings will doubtless be among the difficulties.

In actual fact, it will only be in parallel with the progress secured in political union and the formation of the European Union that it will be possible to advance on the long road towards a joint research and development policy.

PLURIANNUAL RESEARCH PROGRAMME (1977-80)

FOR THE JOINT RESEARCH CENTRE

(proposal by the Commission)

Programme		Expenditure commitment (th.u.a.) (1)
I.	Reactor safety	92 130
II.	Plutonium fuel and radiation research	41 480
III.	Handling of nuclear material and radio-active waste	34 380
IV.	Solar energy	17 270
V.	Hydrogen	16 460
VI.	Pre-design studies for thermonuclear fusion reactors	2 550
VII.	High-temperature materials	9 190
VIII.	Environment and resources	41 330
IX.	Measurements, standards and reference ~~techniques (meter)~~ materials.	59 690
X.	Service and ancillary activities	59 910
	total	374 390

(1) At prices ruling 1st January 1977

Annexe II

RESEARCH AND DEVELOPMENT PROGRAMME

mid-1976

	Direct schemes		Indirect schemes (extra muros)	
	Provision (th.u.a.)	Period	Provision (th.u.a.)	Period
1) Energy policy	74 560	73-76	274 160	3-4 years
2) Agriculture policy	-	-	13 050	75-78
3) Environment policy	15 850	73-76	16 000	76-80
4) Industrial policy	17 200	73-76	36 760	75-77
5) Social policy	-	-	11 000	73-77
6) Raw materials	2 440	73-76	-	-
7) Public services and technico-scientific infrastructure	59 410	73-76	13 840	3-4 years
8) Long-term forecasting			500	74-75

Note : In addition, no decision has yet been made by Council on a provision of 108 million u.a. for the project JET (Joint European Torus), which is accordingly not included in the above table.