

Dublin, 29 June 1978

Speech by Mr. Richard Burke, EEC Commissioner, at the presentation of the GLAXO Fellowships for EEC Science Writers at Thomas Prior House, Royal Dublin Society, on the 29th June 1978 at 6 p.m.

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## EUROPEAN COMMUNITY RESEARCH POLICY

### Introduction

Key areas of Community concern, such as economic competitiveness, secure energy and raw material supplies, and the preservation of a humane social and physical environment are becoming more and more dependent on a common policy in the field of science and technology; in the absence of well coordinated efforts, these problems might well prove insoluble.

It is essential to pursue energetically the further development of the common research research policy. Moreover, scientists, politicians, journalists, industrialists and the public must all contribute, in the awareness that research and technology policy constitutes a driving force for European unity.

### Community's Research Involvement

Since its inception the European Community has been involved in scientific and technical activities, and in January 1974 the Council of Ministers gave the green light to the gradual development of a common policy in this area. The 1951 Treaty of Paris setting up the Coal and Steel Community provides for steel research, the Euratom Treaty provides for research in the peaceful uses of nuclear energy and the EEC Treaty has provision for agricultural research. However, since the late sixties the Commission of the European Communities has foreseen the need for a more embracing overall policy in the field of science and technology.

As in any national research policy, the most important forms of activity are a common approach to the future; research actions, programmes and projects; and the coordination of research. For the Community, the latter includes not only the coordination of national research policies with regard to content, objectives and priorities as well as structure organizational and financial procedures but also the coordination of national and common research activities in given specific sectors.

As far as research actions and projects are concerned, the financial resources available to the European Community for research are limited; they amount to only 1 to 2 % of public funds spent by the Member States on Research and Development.

The Common policy in the field of science and technology has a twofold task: coordinating the policies of the Member States; and defining and implementing research programmes and projects of Community interest. The Research is intended to underpin the Community's sectoral policies, e.g. "energy", "agriculture", "transport" or "environment", and at the same time help in developing new sectoral policies, such as "raw materials" or "social and sociological problems".

The political objectives in the Member States are often, <sup>at</sup> a medium or short-term character, whereas the structural problems facing the Community are, typically, of a long-term nature. It is here that we find the justification for a long-range common research policy.

While the main emphasis in present circumstances is on energy, the four main objectives of present policy are the long term supply of resources (including energy, agriculture and raw materials), promotion of internationally competitive economic development, improvement of living and working conditions and the protection of the environment.

The kind of research projects undertaken by the Community are

- those where there is greater efficiency and rationalization at Community level,
- those of a transnational nature, e.g. transport and telecommunications,
- those where the development costs and marketing opportunities require transnational markets, e.g. aerospace,
- and where projects satisfy needs common to all Community countries e.g. environment, town and country planning, standardization, radiation, protection.

In short, projects are likely to be of a Community nature where the costs, whether in terms of money or manpower, are too high for a single Member State or where joint implementation can lead to significant saving. Sometimes also the national R & D capacity might be insufficient.

A common research programme is particularly beneficial to small countries such as Ireland in that by partaking thereof these countries have the opportunity of drawing on research results of Member States with greater resources and vast technical "Know how".

For the period 1977-80 the estimated Community expenditure on R & D is about £ 600 million. Of this, about £ 225 (about 37%) will be for direct research in the Community's own Research Centres and the balance for aiding research undertaken in various institutions both public and private within the Community. Some 60% of the total is for the field of energy research. The other policies to be supported by R & D over this period are industrial policy, environmental policy, resources and raw materials, transport policy, agricultural policy, social policy, development aid and public services.

### Implications for Ireland

In the area of fisheries policy you are probably all aware of the research contract announced by my colleague, Mr Gundelach, and the Irish Government earlier this month for a study of the Irish sea-fishing industry which will cost about £ 80,000 - to be financed jointly by the EEC and the Irish Government. This study will define a programme of development for the industry and will be carried out by the E.S.R.I. under the direction of a research economist nominated by the Commission. This is only a "drop in the ocean", so to speak (!), amongst the research contracts which are already being carried out in Ireland under EEC sponsorship, but significant in that it is Community action in support of a policy which is of particular importance to this country. Other contracts, e.g. in the fields of environmental research, radiation protection and solar energy to mention but a few, are indicative of the important contribution of the Irish scientific community to overall Community research programmes.

In addition I should like to stress that on the direct research side, the facilities and programmes of the Joint Research Centre are available to Irish scientists. Contracts under the various indirect action programmes are being carried out here in universities, research institutes and in the private sector. Irish scientists and science policymakers are actively involved in the preparation of policies and programmes through their participation in advisory committees to the Commission and the management committees of the various programmes.

Furthermore, let me give an example of fruitful interaction between the Irish scientific population and the European Community.

In the energy systems modelling programme, the active co-operation of the two Irish groups (NBST and ESRI) is enabling the development of an integrated energy supply and demand model for the Community. This model will be part of the international system and should be available for sectoral studies and general energy policy issues before the end of this year. The Irish contribution to this programme is very significant indeed, and I have pleasure in announcing here that the Commission hopes to organize a large worldwide conference in Dublin next year on the subject of energy systems modelling.

A sectoral example: energy research.

I have already referred to the central role of the Community in Energy Research and it is perhaps a good example of the need for a common large scale research effort.

The European post-war society had become accustomed to apparently unlimited resources. Energy, raw materials, and agricultural products appeared to be available without limit. Only with the oil crisis did it become glaringly obvious that there may be a limit to growth and that the resources of the planet are finite.

Present day energy production based mainly on the fossil fuels, oil, coal and natural gas cannot supply the needs of the world indefinitely and in any case, have such a value as chemicals that as they become depleted they may be too precious to burn simply for the purpose of producing electricity.

The apparent abundance of oil and the restraint of the OPEC countries at the present time should not lull the Community into a false sense of security about its energy situation. The most recent estimates indicate that the Community's energy demand will more than double by the end of the century. Recent estimates have also shown that there are limits to the rate at which oil can be recovered and that sometime before the year 2000 the decreasing supply of it will fail to meet increasing demand.

If we are to ensure the continued existence of our technological civilization, and if we are to raise the living standards of the developing countries, it will be necessary to find new sources of energy and to develop new processes and technologies that will allow costs to be kept within acceptable limits.

Because of these facts, the Commission has been evaluating the current and future energy supply situation of the Community. In conclusion of this examination, it appears that the likely contribution from the alternative sources\* of energy by the year 2000 will probably not exceed 5% of the total energy demand of the Community. This is due to the relatively short time span under consideration and the technical, economic, social and environmental constraints of the proper exploitation of these new sources. For example, if all motor vehicles in the Community were to use ethanol, as a fuel based on grain products, the production requirements for ethanol by the year 2000 would be about 100 million tons per annum. The technology is known but the land requirements estimated at between 1.2 and 1.6 million square kilometres would be prohibitive.

Nevertheless one can expect that these energy sources might constitute an option for the post-oil Community which we cannot neglect. This is why their development has to be tackled right from now on with sufficient intensity. Besides all progress made in this field would also constitute an asset (even at shorter term) for assisting the Third World in its economic and social development. These are the reasons which have to further strengthen the Community's resolve to develop new energy sources. Indeed the 5% of total energy demand by the year 2000 is not insignificant when I say that at the present time only 2% of our energy requirements are met by nuclear power.

The most talked about research undertaking in the past few years has been the so-called JET project, which is the largest experiment in fusion research undertaken to date. JET (Joint European Torus) is an experiment which has the ultimate aim of utilizing a new energy source. This is the energy released by the fusion of the nuclei of light atoms, the energy source of the sun.

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\* Direct Solar Power, wind power, geothermal energy, coal gasification and liquifaction, wave and tidal power, alternative vehicle fuels (ethanol, hydrogen, methanol, methane, electricity).

The JET project is to construct, operate and exploit a large torus facility, at Culham in Oxfordshire, in order to extend the parameter range applicable to controlled thermonuclear fusion experiments up to the conditions close to those needed in a thermonuclear reactor.

The cost of JET during its Construction Phase, extending up to 1983, and covering the actual cost of building JET, its commissioning and the beginning of its exploitation within its basic performance is put at £120 m. approximately. The Operation Phase of the Project will probably extend over a period of 5 to 7 years. It is estimated that the annual cost of the project during this second phase will be similar to that of the first phase.

In so far as the experts tell us that we as a Community, need to keep our options open on nuclear power, for the period after 1990, this JET project is to be welcomed because it is safer than conventional nuclear fission power. Firstly fusion is intrinsically cleaner because the ultimate fusion products (mainly helium) are non radioactive and harmless. The radioactivity produced by neutron irradiation in the structural materials of a fusion reactor are expected to be less than in a fission reactor. Secondly, the amount of fuel in the reactor zone is expected to be so small that there is no prospect of a dangerous nuclear runaway.

In addition, as it is not based on uranium, it also offers increased diversity in our sources of energy supply.

In the light of these facts, the significance of the JET is clear and indeed countries outside the Community have agreed to partake in the project.

#### Conclusion

Research and development must be undertaken for the benefit of the citizen. However, the application and meaning of research results is not always apparent to the public. For this reason, I am pleased to present the prizes in a competition such as this, organized to encourage clear and objective reportage of scientific subjects.

The journalists role in the dissemination of scientific information will continue to be important in so far as the public continue to question the role of science and technology and its impact on their lives.