COUNCIL DECISION

of 7 June 1991

adopting a specific research and technological development programme in the field of the environment (1990 to 1994)

(91/354/EEC)

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 130q (2) thereof,

Having regard to the proposal from the Commission (1),

In cooperation with the European Parliament (2),

Having regard to the opinion of the Economic and Social Committee (3),

Whereas, by Decision 90/221/Euratom, EEC (4), the Council adopted a third framework programme for Community activities in the field of research and technological development (1990 to 1994), specifying *inter alia* the activities to be pursued for developing the scientific knowledge and technical know-how needed by the Community, in particular to carry out its role relating to the environment according to Part Three, Title VII of the Treaty; whereas this Decision should be taken in the light of the grounds set out in the preamble to that Decision;

Whereas Article 130k of the Treaty stipulates that the framework programme shall be implemented through specific programmes developed within each activity;

Whereas the Joint Research Centre (JRC) shall contribute through its own programe to the implementation of the aforesaid activities;

Whereas basic research in the environment field must be encouraged throughout the Community;

Whereas in addition to the specific programme concerning human resources and mobility, it might be necessary to encourage the training of research workers in the context of this programme;

Whereas, in the context of this programme, an assessment should be made of economic and social impact as well as of any technological risks;

Whereas, pursuant to Article 4 of and Annex I to Decision 90/221/Euratom, EEC, the amount deemed necessary for the whole framework programme includes an mount of ECU 57 million for the centralized dissemination and exploitation of results, to be divided up in proportion to the amount envisaged for each specific programme;

Whereas Decision 90/221/Euratom, EEC provides that a particular aim of Community research must be to strengthen the scientific and technological basis of European industry and to encourage it to become more competitive at the international level; whereas it also provides that Community action is justified where research contributes, *inter alia,* to the strengthening of the economic and social cohesion of the Community and to the promotion of its overall harmonious development, while being consistent with the pursuit of scientific and technical excellence; whereas the programme in the environment field is looked upon as contribution to the achievement of these objectives;

Whereas small and medium-sized enterprises (SMEs) should be involved to the maximum extent possible in this programme; whereas account should be taken of their special requirements, without prejudice to the scientific and technical quality of the programme;

Whereas it might be advisable to allow bodies and enterprises established in third countries to take part in this programme;

Whereas it is necessary, as Annex II to Decision 90/221/Euratom, EEC provides, to take protection of the environment and the quality of life into account by directing research activities towards an understanding of the fundamental mechanisms of the environment and towards the devising and implementation of an overall strategy approach to risk-prevention activities, while contributing to the preparation of quality and safety standards;

Whereas the Scientific and Technical Research Committee (Crest) has been consulted,

HAS ADOPTED THIS DECISION:

Article 1

A specific research and technological development programme, for the European Community in the environment field, as defined in Annex I, is hereby adopted for a period beginning on 7 June 1991 and ending on 31 December 1994.

(1) OJ No C 174, 16. 7. 1990, p. 40.
(2) OJ No C 324, 24. 12. 1990, p. 283; and OJ No C 158, 17. 6. 1991.
(3) OJ No C 332, 31. 12. 1990, p. 23.
(4) OJ No L 117, 8. 5. 1990, p. 28.

Article 2

1. The funds estimated as necessary for the execution of the programme amount to ECU 261,4 million, including expenditure on staff and administration amounting to ECU 15 million.

2. An indicative allocation of funds in set out in Annex II.

3. Should the Council take a decision in implementation of Article 1 (4) of Decision 90/221/Euratom, EEC, this Decision shall be adapted accordingly.

Article 3

Detailed rules for the implementation of the programme, including the amount of the Community's financial contribution, are set out in Annex III.

Article 4

1. In the second year of implementation of the programme, the Commission shall review it and send a report on the results of its review to the European Parliament and the Council; the report shall be accompanied, where necessary, by proposals for amendment of the programme.

2. At the end of the programme, an evaluation of the results achieved shall be conducted for the Commission by a group of independent experts. This group's report, together with any comments by the Commission, shall be submitted to the European Parliament and the Council.

3. The reports referred to in paragraphs 1 and 2 shall be established having regard to the objectives set out in Annex I to this Decision and in accordance with Article 2 (4) of Decision 90/221/Euratom, EEC.

Article 5

1. The Commission shall be responsible for the implementation of the programme.

2. Contracts concluded by the Commission shall govern the rights and obligations of each party, in particular the arrangements for the dissemination, protection and exploitation of research results, in accordance with the provisions adopted pursuant to the second subparagraph of Article 130k of the Treaty.

3. A work programme shall be drawn up in accordance with the aims set out in Annex I and updated where necessary. It shall set out the detailed objectives and types of projects to be untertaken, and the financial arrangements to be made for them. The Commission shall make calls for proposals for projects on the basis on the work programme.

Article 6

1. The Commission shall be assisted by a committee composed of representatives of the Member States and chaired by the representative of the Commission.

2. The representative of the Commission shall submit to the committee a draft of the measures to be taken. The committee shall deliver its opinion within a time limit which the chairman may lay down according to the urgency of the matter. The opinion shall be delivered by the majority provided for in Article 148 (2) of the Treaty as regards adoption of decisions which the Council is required to adopt on a proposal from the Commission. When the committee votes, the votes of the representatives of the Member States shall be weighted as laid down in the abovementioned Article. The chairman shall not vote.

3. The Commission shall adopt the proposed measures when they are in accordance with the committee's opinion.

4. When the proposed measures are not in accordance with the committee's opinion, or where no opinion is delivered, the Commission shall submit to the Council without delay a proposal concerning the measures to be taken. The Council shall act by a qualified majority.

5. If, on the expiry of a period of three months from referral of the matter to the Council, the latter has not acted, the proposed measures shall be adopted by the Commission.

Article 7

1. The procedure laid down in Article 6 shall apply to:

— the preparation and updating of the work programme referred to in Article 5 (3),

— the contents of the calls for proposals,

— the assessment of the projects provided for in Annex III and the estimated amount of the Community's contribution to them where this amount exceeds ECU 0,3 million,

— departures from the general rules set out in Annex III,

— the participation in any project by non-Community organizations and enterprises referred to in Article 8 (1) and (2),

— any adaptation of the indicative allocation of the amount set out in Annex II,

— the measures to be undertaken to evaluate the programme,

— arrangements for the dissemination, protection and exploitation of the results of research carried out under the programmes.

2. Where, pursuant to the third indent of paragraph one, the amount of the Community contribution is less than or equal to ECU 0,3 million, the Commission shall inform the committee of the projects and of the outcome of their assessment.

The Commission shall also inform the committee of the implementation of accompanying measures and of the concerted actions referred to in Annex III.

Article 8

1. The Commission is authorized to negotiate, in accordance with Article 130n of the Treaty, international agreements with third countries which are members of COST, particularly the member countries of EFTA and the countries of Central and Eastern Europe, with a view to associating them with the whole programme or a part of it.

2. Bodies and enterprises established in European third countries may, on the basis of the criterion of mutual benefit, be allowed to take part in action undertaken in the context of this programme. For projects in Area 1 of Annex I, this option may be extended to bodies and enterprises from other third countries engaged in research in this area.

No contracting body based outside the Community and participating as a partner in a project undertaken under the programme may benefit from Community financing for this programme. The body concerned shall contribute to the general administrative costs.

Article 9

This Decision is addressed to the Member States.

Done at Luxembourg, 7 June 1991.

For the Council

The President

R. STEICHEN

ANNEX I

SCIENTIFIC AND TECHNICAL OBJECTIVES AND CONTENT OF THE PROGRAMME

This specific programme fully reflects the approach embodied in the third framework programme in terms of the scientific and technical goals and the underlying aims which it pursues.

Paragraphs 3.A, 3.B, 3.D and 3.E of Annex II to the framework programme form an integral part of the present specific programme.

The actions envisaged will enable large projects to be undertaken to complement and strengthen the activities of the ongoing environment research programmes, the main aim being to take account of the environment and the quality of life by directing research activities towards an understanding of the fundamental mechanisms of the environment and towards devising and implementing integrated prevention strategies in all areas of human activity, and in particular to respond rapidly to the scientific challenges which arise from global change and to provide continuity in scientific support for the environmental policy of the Community.

In addition, the Community must be able to call on multidisciplinary research, able to study all the elements which make up the biosphere and follow its historical development. Such research must look both at the relationship between man and his natural environment and at his relationship with his economic, social and cultural environment etc., since these form an indivisible whole.

The following presents an analytical description of the content of the programme, based on, and taking account of, the above elements.

AREA 1: PARTICIPATION IN GLOBAL CHANGE PROGRAMMES

The goal is to contribute to understanding the processes governing environmental change and to assess the impact of human activities. Particular importance will be placed on the use of physical and chemical indicators as well as biological indicators; the latter have the advantage of providing an integrated response to all factors of change. Community participation will be concentrated on problems which will have an impact on environment policy and in areas where the Community is best placed to ensure European coordination in the framework of large international programmes while taking account of national programmes.

Natural climatic change

The objective is to reconstruct and model the evolution of the climate system of the past in order to understand better how the system may evolve under the influence of factors of human origin. Alongside other paleoclimatic data, taking advantage of deep ice core samples to be taken in the next years, research will aim at the reconstruction and modelling of the quaternary climatic cycles. In particular, the last climatic cycle should be accurately reconstructed, in order to understand and model the onset of the most recent glaciation.

Anthropogenic climate change

Research will be carried out to understand, describe and forecast climatic change resulting from the enhanced greenhouse effect due to human activities, in order to provide the scientific basis for preventive or adaptive measures. The programme will encompass the development, testing and intercomparison of integrated high-resolution global change models coupling the atmosphere (including clouds), the ocean, the biosphere and the cryosphere — especially ocean-atmosphere exchange — taking advantage of modern supercomputer and computer-linking techniques.

Climate change impacts

The aim is to forecast the physical and human impacts of the foreseen climate change in the European Community. The emphasis will be on the quantitative assessment and modelling of the impacts of the foreseen climate change, especially the sea level rise and its consequences for European towns and low-lying coastal areas, and the impacts on European agriculture, forests, water resources and other sectors of the European economy (tourism, land use, energy, transport, etc.).

Stratospheric ozone

Work will aim at understanding and forecasting processes which lead to the depletion of stratospheric ozone and the consequences of this depletion and the provision of the scientific basis for preventive measures.

New activities will include Arctic campaigns in 1991/92 and 1992/93 to identify possible ozone depletion. In parallel, data collection from a network of ground measurement stations will be coordinated, complemented by measurements from mobile stations and by laboratory research on pertinent chemical reactions. These activities will be accompanied by the modelling of stratospheric processes, including the consequences of emission scenarios, and by the assessment of the ecological and health effects of increased UV-B radiation

Tropospheric physics and chemistry

Research will be carried out to elucidate important physico-chemical processes in the troposphere as a basis for the definition of preventive measures aimed at reducing emissions. New approaches to the understanding of tropospheric ozone, radical hydroxyl, total active nitrogen oxides, hydrocarbons (solid and gaseous phase) will include coordinated clean-air measurement campaigns as well as modelling work combining meteorological and chemical models. These activities will be extended to natural emissions, in particular terpenes and other hydrocarbons and sulphur and halogen-containing compounds.

Biogeochemical cycles

Work will aim at deepending the understanding of biogeochemical cycles and their disturbance by human activities and providing the scientific basis for preventive and remedial actions.

The material balance for chemical elements will be established in a network of inland catchment areas. The study of the sources and pathways of natural and anthropogenic compounds in the European estuarine/coastal environment will be extended from the Mediterranean to other coastal areas. Emphasis will be given to regional projects of global importance, where appropriate in close cooperation with the marine sciences and technologies programme.

Ecosystem dynamics

The aim is to understand and forecast the interaction of global change and the dynamics of terrestrial and freshwater ecosystems and to provide a scientific basis for preventive and adaptive policies. The new element is the holistic approach to the investigation of important types of ecosystems such as wetlands, seminatural and agro-ecosystems. The global impact of exploitation and clearing of tropical forests and grassland and, in general, the evolution of biological and genetic diversity will receive particular attention, in close coordination with the biotechnology programme.

AREA 2: TECHNOLOGIES AND ENGINEERING FOR THE ENVIRONMENT

The objective is to promote better environment quality standards by encouraging technological innovation at the pre-competitive level. The two main lines of research in this field will be environmental monitoring, including remote sensing applications, the development of clean technologies and the development of techniques, systems and management methods to protect and rehabilitate the environment. Scientific support for the activities of the future European Environment Agency will be an important consideration in this research area.

Assessment of environmental quality and monitoring

Research will contribute to the development of advanced equipment and analytical methods for high performance environmental monitoring systems. Research will aim at the development of both airborne and ground-based methods and instruments for measuring atmospheric constituents and the design of advanced methods, including those using biological parameters, for the assessment of environmental quality. The analysis of polluting emissions (including noise), of waste, of water and of liquid effluents, with particular reference to the behaviour of pollutants on the subsoil and ground water, will receive particular attention. The development and testing of monitoring and alert systems for natural hazards such as seismic and volcanic phenomena, landslides, storms and floods, and forest fires will also be covered.

Technologies for protecting and rehabilitating the environment

Work will be carried out to contribute to the development of technologies for protecting and rehabilitating the environment including all the main aspects of urban and rural environment. Research concerned with the

treatment and chemical, physical, biological and microbiological disposal of toxic waste and of liquid effluents and the recycling of urban, agricultural and industrial wastes will be complemented by the development of low-emission and low-waste technologies for selected industrial sectors.

Research aiming at the prevention of major industrial and transport accidents through a greater understanding of hazard phenomena will be widened to include the validation of methodologies of assessing risk and will take particular account of social factors: it will also cover the development of low risk alternative technologies and sophisticated process control and detection systems.

For monuments and objects which are components of the European cultural heritage, research will quantify the causes and mechanisms of deterioration linked to natural and environmental factors, including by historical dating; new methods of condition assessment will be developed, and the scientific basis for treatments and materials for conservation will be strengthened. Activities in this area will be coordinated with the Eureka project Euro-environment and research teams funded by the programme will participate in the Eureka project Eurocare.

AREA 3: RESEARCH ON ECONOMIC AND SOCIAL ASPECTS OF ENVIRONMENTAL ISSUES

The general objective is to improve the understanding of the legal, economic, social, ethical and health aspects of environmental policy and management. Research will address critical areas of environmental social science and environmental economics research, ranging from basic development of methods and concepts and their application to environmental issues, to their incorporation into specific Community sectoral policies and environmental research programmes.

Socio-economic assessment of the changing environment

The objective is to develop the concepts of environmental social science and environmental economics and their application to environmental change and to the principles of lasting development. Account will be taken of the rapidly increasing scientific understanding of the human and natural environment. Particular attention will be given to the integration of research and development efforts in Member States and to the establishment of cooperative links with relevant international programmes.

Topics to be covered include: incorporating environmental parameters into economic methodology; cost/risk/benefit analysis; environmental indicators; risk perception; environmental ethic; early warning of environmental change including demographic, population and technological change.

Socio-economic impact of environmental policies and research

The objective is to incorporate environmental socio-economic factors into Community policies and to provide a socio-economic dimension for Community environmental research and development. Work within this theme is intended to ensure that, in line with the provisions of the Single Act, environmental factors are sufficiently taken into account in Community sectoral policies and supporting research and development.

Furthermore, as scientific and socio-economic parameters are closely interdependent in a number of research topics in the present programme, work under this theme will ensure that socio-economic considerations and parameters are properly incorporated into relevant coordinated research projects. Illustrative examples include: integrated waste recycling systems within the internal market; ecological consequences of demographic and population changes (e.g. Alps and other mountain regions); environmental impact of tourism.

AREA 4: TECHNOLOGICAL AND NATURAL RISKS

The objective is to help solve broad problems of transnational interest through a system approach and interdisciplinary research.

Projects will relate to the following fields:

Natural risks

Work will aim at understanding the causes, mechanisms and consequences of hazardous environmental phenomena, and providing the scientific basis for disaster management (preparedness, prediction, alert, mitigation or prevention, recovery and redevelopment).

Integrated research in this area will provide a European contribution to the 'International Decade for Natural Hazard Reduction'. It will cover telluric, meteorological and hydrogeological harzards, including research on forest fires, floods and slope instability and the phenomenology of extreme hazardous meteorological events.

Research on telluric hazards (earthquakes and volcanic eruptions) will consist mainly of theoretical studies of telluric phenomena and of the behaviour of structures during these phenomena and will aim at the setting up of field measurement sites and of rapid intervention networks in selected active zones in the Community.

Technological risks

The aim is to understand the consequences of human activities, technologies and products for human health and the environment as a basis for preventive Community policies and legislation.

Research in this area will cover the development and validation of systems for testing and assessment of chemicals for health and ecological effects. It will be complemented by studies of the effect of environmental pollution and electro-magnetic emissions on human health. Furthermore, the risks from agricultural technologies and land-use practices to soil and groundwater quality will be investigated. This work will extend to regional aspects of ecosystem protection including the eutrophication of coastal seas (in liaison with the specific programme on marine science and technology), the protection and conservation of habitats, forest dieback and the acidification of water bodies.

Desertification in the Mediterranean area

Research will be carried out to assess the natural and human causes, the mechanisms and the impact of the spread of desertification in the Mediterranean area. Research will deal with the history, causes (human and climatic) and consequences of desertification. Strategies to combat desertification will be developed and their application to selected test zones will be envisaged.

ANNEX II

INDICATIVE BREAKDOWN OF THE AMOUNT DEEMED NECESSARY

(in million ecus)

Area	Breakdown
1. Participation in global changes programmes	104,6
2. Technologies and engineering for the environment	65,3
3. Research on economic and social aspects of environmental issues	15,7
4. Technological and natural risks	75,8
	Total 261,4 (1) (2)

(1) Including expenditure on staff which comes to ECU 10,4 million and administrative expenditure totalling ECU 4,6 million. At least 10 % of the total will be allocated to basic research and 2 % to training.

(2) An additional ECU 150 million will be earmarked for JRC research activities on the environment, including ECU 1,5 million representing the JRC's contribution to centralized dissemination activities under the present specific programme.
A sum of ECU 2,6 million, not included in the ECU 261,4 million, will be earmarked as the contribution from the specific environment programme to the centralized scheme for the dissemination and exploitation of results.

The breakdown between different headings does not exclude the possibility that projects could come under several headings.

ANNEX III

RULES FOR IMPLEMENTING THE PROGRAMME

1. The Commission will implement the programme on the basis of the scientific and technical content described in Annex I.

2. The rules for implementing the programme, referred to in Article 3, comprise research and technological development projects, accompanying measures and concerted actions:

— **Research projects**

The projects will be the subject of shared-cost research and technological development contracts. Selection of projects must take account of the criteria listed in Annex III to Decision 90/221/Euratom, EEC and of the objectives set out in Annex I to this programme.

For shared-cost projects Community financial participation will not normally be more than 50 %. Universities and other research centres participating in shared-cost projects will have the option of requesting, for each project, either 50 % funding of total expenditure or 100 % funding of the additional marginal costs.

Shared-cost research projects must, as a general rule, be carried out by participants established within the Community. Projects in which for example universities, research organizations and industrial firms, including small and medium-sized undertakings, may participate must, as a general rule, provide for the participation of at least two partners, the one being independent of the other and established in a different Member State. Contracts relating to shared-cost research projects must as a general rule be concluded following a selection procedure based on calls for tenders published in the *Official Journal of the European Communities*.

The Commission will publish a vade-mecum setting out all the rules applying to the selection of projects, in order to guarantee full transparency.

— **Accompanying measures**

The accompanying measures referred to in Article 7 will consist of:

— the organization of seminars, workshops and scientific conferences,

— internal coordination through the creation of integrating groups,

— advanced technology training programmes, with emphasis being placed on multidisciplinarity,

— promotion of the exploitation of results,

— ongoing consideration of the problems arising in the long term in the environmental sphere, by a high-level working party of experts,

— independent scientific and strategic evaluation of the operation of the projects and the programme.

— **Concerted actions**

Concerted actions consist of action by the Community to coordinate the individual research activities carried out in the Member States. They may benefit from funding of up to 100 % of coordinating expenditure.

3. The knowledge acquired in the course of the projects will be disseminated both within the specific programme and by means of a centralized activity, pursuant to the Decision referred to in the third subparagraph of Article 4 of Decision 90/221/Euratom, EEC.