

COMMISSION OF THE EUROPEAN COMMUNITIES

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Draft

Proposal for a

COUNCIL DECISION

REVISING THE SECTORAL RESEARCH AND DEVELOPMENT PROGRAMME IN THE FIELD
OF ENVIRONMENT (ENVIRONMENTAL PROTECTION AND CLIMATOLOGY)
- Indirect and Concerted Action - 1981-1985

(submitted to the Council by the Commission)

COM(83) 539 final

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INTRODUCTION

This proposal is concerned with a revision of the sectoral R&D Programme in the Field of Environment (Environmental Protection and Climatology) - Indirect and Concerted Action - 1981-85, adopted by the Council on 3 March 1981 (1) and subject to review in 1983.

Such a revision must be viewed in the new context of the Framework Programme 1984-87 (2) and its implementation by means of Research Action Programmes (RAPs), which should include all Community research actions in a specific sector: direct action (Joint Research Centre), contract research and concerted actions.

In a first attempt to establish a RAP in the broad field of environment, the Commission has merged a series of activities, carried out either in the JRC or from headquarters, which can be grouped into 4 sub-programmes: environmental protection, climatology, remote sensing and industrial risk.

While there are obvious links between these, it should be realised that perfect integration within the RAP can be achieved only progressively as the new Community research strategy is implemented.

In this communication, specific proposals for revision are preceded by an account of the overall Research Action Programme which shows the range of constituent sub-programmes and the several forms of direct action contributions (Joint Research Centre), shared cost contract research and concerted action research in the COST framework. At the same time, the relationships of the Research Action Programme to the Framework Programme (2) and to the Third Environmental Action Programme 1982-86 (3) are presented.

The draft amendments to the Council decision (1) which are proposed, refer only to the sub-programme environment protection, and, within this sub-programme, only to those actions carried out by contract and concerted actions. The activities of the Joint Research Centre in the field of environment protection are closely coordinated with the other elements of the Research Action Programme with a coordinator for each sub-programme and a single overall Research Action Programme coordinator. However, the Joint Research Centre resources involved are embodied in the separate integrated proposal for the JRC Programme 1986-87 (4) and are shown here only for the purpose of displaying the full picture of Research Action Programme activities.

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- (1) O.J. L 101, 11.04.1981, p. 1
 - (2) COM(83) 260, 17.05.1983
 - (3) O.J. C 46, 17.02.1983
 - (4) COM(83) 327, 26.05.1983

A. THE RESEARCH ACTION PROGRAMME (RAP) "ENVIRONMENT"

In the Proposals for a European Scientific and Technical Strategy-Framework Programme 1984-1987 (1), two scientific and technical objectives are related to the Community goal "Improving living and working conditions":

- improvement of safety and protection of health
- protection of the environment and prevention of hazards.

In this general context, the main, although not the only aim of the Communities research activities in the field of Environment is to provide scientific support for the implementation of the environment policy of the European Communities.

This policy has been first defined in 1973 (2) (First Environment Action Programme) and updated in 1977 (3) (Second Environment Action Programme). The Third Environment Action Programme 1982-1986, agreed by the Council in the Resolution of 7 February 1983 (4), underlines the preventive character of the environmental policy and indicates a list of priority actions. The following items on the priority list are of particular relevance for the RAP "Environment":

- environmental chemicals
- atmospheric pollution
- freshwater and marine pollution
- pollution of the soil
- noise pollution
- transfrontier pollution
- waste management
- development of clean technologies.

The Council resolution requires also the integration of the environmental dimension into other Community policies.

With regard to research, the Third Environment Action Programme states

"In implementing the various research programmes approved by the Council, the Commission will place greater stress on, in particular, those measures which are likely to sustain in the short, medium and long terms the present action programme".

Most of the research activities to be part of the RAP "Environment" are directly relevant to the above mentioned priority goals. They will deliver results which are directly applicable to the implementation of the Environment Action Programme, either in supporting the environmental policy goals still to be achieved or in providing the means necessary for the enforcement of already adopted Community regulations (the latter applies e.g. to the Council Directive on the major accident hazards of industrial activities) (5).

In addition to the needs arising from the short- and medium-term goals of the environment policy, a sound research programme should include long-term studies which represent the necessary background for any preventive environmental policy, in connection with the likely further

(1) COM(83) 260, 17.05.1983

(2) O.J. C 112, 20.12.1983

(3) O.J. C 139, 13.06.1977

(4) O.J. C 46, 17.02.1983

(5) O.J. L 230, 05.08.1982

development of other sectoral policies. In this sense, the programme should address, as recommended in the Framework Programme,

- more fundamental research on understanding environmental mechanisms and disturbances and their consequences;
- climatology (including the relationships between climate and atmospheric pollution) and eco-climatology of water-deficient regions (desertification);
- the protection of health and the environment from man-made and natural accidents and catastrophes;
- the development and application of modern techniques for monitoring the environment, in particular remote sensing techniques.

Finally, some of the more important links of the Research Action Programme "Environment" with other Community goals listed in the Scientific and Technical Strategy Framework Programme need to be mentioned. Apart from the more general aim of introducing an environmental dimension into other policies, the proposed research is directly relevant to

- promoting agricultural and fisheries' competitiveness (e.g. application of remote sensing techniques, effects of air pollution)
- promoting industrial competitiveness (e.g. pollution abatement technologies, clean technologies)
- improving the management of energy resources (e.g. reduction of emissions)
- improving the management of raw materials (e.g. recycling of waste)
- reinforcing development aid.

The Research Action Programme is implemented in three ways: direct action (JRC), indirect action (contract research), concerted action, the latter in general with the participation of Non-Member Countries within the framework of COST.

Its make-up is shown in Table 1. The total budget of the proposed RAP, expressed in 1982 value, is 145.7 MECU.

The RAP "Environment" is contributing to the various goals identified in the Framework Programme as follows:

	<u>% contributed (approximate)</u>
1. Promoting agricultural competitiveness	9
2. Promoting industrial competitiveness	7
3. Improving the management of raw materials	2
4. Improving the management of energy resources	6
5. Reinforcing development aid	6
6. Improving living and working conditions	<u>70</u>
	100%

The Commission envisages also to propose new sub-programmes in the areas of natural catastrophes and desertification, taking account of the comments and suggestions made by CREST and the Research Council during discussions of the Framework Programme.

TABLE I
 RESEARCH ACTION PROGRAMME ENVIRONMENT
 STRUCTURE AND FUNDING, Mio ECU

Subprogrammes	Revised Programme		Existing Programme	
	Contract Research 1981-85	Concerted Actions 1981-85	JRC ⁽¹⁾ (2) 1984-87	Contract Research 1981-85 Concerted Actions 1981-83 JRC 1980-83
Environmental Protection	43.3	3.2	48.2	33.0 1.0 37.5
Climatology	8.0	-	-	8.0 - -
Remote Sensing	-	-	29.0	- - 20.5
Industrial Risk	-	-	21.5	- - -

(1) 1983 ECU's

(2) New programme, not the subject of the present proposal

B. DRAFT PROPOSAL FOR A COUNCIL DECISION REVISING THE SECTORAL RESEARCH AND DEVELOPMENT PROGRAMME IN THE FIELD OF ENVIRONMENT (ENVIRONMENTAL PROTECTION AND CLIMATOLOGY) - Indirect and Concerted Action - 1981 - 1985

I. INTRODUCTION

On 3rd March 1981, the Council approved a Sectoral Research and Development Programme in the Field of Environment (Environmental Protection and Climatology), 1981-1985 (1). Article 3 of the programme decision of 3 March 1981 stipulates:

"The programme shall be reexamined at the end of the third year, this reexamination may lead to a revision of the programme in the course of the fourth year following the appropriate procedures, and after the Committees referred to in Article 5 have been consulted".

After having consulted the two Advisory Committees on Programme Management in the fields of Environment Protection and of Climatology, the Commission proposes a revision of the programme as of 1 January 1984 for the period 1984-1985.

In summary, the revision covers the following:

Subprogramme "Environmental Protection"

a) Indirect Action (contract research)

The scientific content of the programme executed by means of contracts remains unchanged. It is proposed, however, to place more emphasis to research

- on the ecological effects of air pollutants (in common language the effects of "acid rain"),
- on management, recycling and disposal of waste, in particular of toxic and dangerous waste.

Supplementary funding is requested for research in these areas.

b) Concerted Actions

The Concerted Actions

- Physical-Chemical Behaviour of Atmospheric Pollutants (COST 61a),
- Analysis of Organic Micropollutants in Water (COST 64b),
- Treatment and Use of Sewage Sludge (COST 68),

end on 31. December 1983. It is proposed to extend them, but in a thoroughly revised form. The new programmes should be implemented for an initial period 1984-1985. COST Non-Member States should be invited to participate in the revised projects.

The Concerted Action "Coastal Benthic Ecosystems" (COST 47), implemented as a category III-COST project and ending in April 1984, should be revised, transformed into a Community Concerted Action and implemented as a category II-COST project.

(1) O.J. L 101, p. 1 (11.04.1981)

For an initial period of two years (1984-1985), new concerted actions are to be implemented dealing with

- Effects of Air Pollutants on Terrestrial and Aquatic Ecosystems,
- Indoor Air Quality,
- Bird Protection.

COST-Non-Member States should be invited to participate. In addition to the effort to coordinate on-going national research in these areas, selected projects which have immediate implications for Community regulations should be funded.

Subprogramme "Climatology"

No revision of this subprogramme is proposed here.

II. JUSTIFICATION AND AIMS

The analysis concerning the justification and the aims of the programme given in document COM(80) 343 final, on which the Council Decision adopting a Sectoral R&D Programme in the Field of Environment was based, is still valid; the three major aims were given as

- 1) to provide scientific and technical data to support the programme of action on the environment. This is mainly concerned with the reduction of pollution and nuisances and the non-damaging use and rational management of land, the environment and natural resources;
- 2) to address less immediate problems, thus preparing the way for policies to be enacted in the medium- to long-term, taking account of foreseeable environmental trends, and to provide the means to evaluate the consequences for the environment of current policies aimed at protecting it;
- 3) to serve as an instrument to further the coordination at Community level of national research activities in the environmental field, in order to improve the productivity of the overall effort through the encouragement of joint projects, the elimination of useless duplication as well as of gaps in research coverage.

The Third Action Programme on the Environment approved by the Council on 7 February 1983 (1), while stressing prevention of pollution, the integration of an environmental dimension in other policies and a better resource management, confirms entirely the need for research in the areas which are already part of the programme.

Greater emphasis has to be given, however, to two problems, both of them on the priority list of the Third Environment Action Programme:

- a) the ecological effects of atmospheric pollution ("acid rain"):

Dramatic effects on terrestrial ecosystems (in particular forests) and aquatic ecosystems have been observed in recent years, which gave rise to major public concern. These effects are attributed,

(1) O.J. C 46, 17.02.1983

at least in part, to the influence of air pollutants and their reaction products, although the exact mechanisms and the interaction with other environmental factors are poorly understood. A vastly increased research effort is needed immediately to elucidate these phenomena. Similar concern is expressed with regard to the effects of air pollutants on buildings and monuments.

- b) the improvement of waste management, particularly in view of a prevention of soil pollution:

Growing public attention is given to the manifold problems linked with the management, recycling and disposal of waste, in particular to the safe handling of toxic and dangerous waste. The recycling of bulk waste coming from the demolition of buildings, etc. requires also an increased research effort. The Committee on Waste Management (1) urged the Commission to strengthen its research efforts in this area.

Consequently, it is proposed to allocate additional funds for contract research in these topics.

III. CONTENTS OF THE REVISED PROGRAMME

1. Indirect Action in the Field of Environmental Protection

The sub-programme "Environmental Protection" (1981-1985) covers 5 research areas:

- 1) Sources, pathways and effects of pollutants
- 2) Reduction and prevention of pollution and nuisances
- 3) Protection, conservation and management of the natural environment
- 4) Environment information management
- 5) Complex interactive systems: man-environment interaction

A total of 33 MECU was allocated for funding contracts and management of contract research for the period 1981-1985. Taking into account the commitments for research contracts during the first phase (1981-1983) and appropriations for a continuation of a limited number of them until 1985, only 8 MECU are still available to fund new contracts for the period 1984-1985, unless supplementary funds are made available.

It is proposed that research in all areas should be continued without modification of the overall scientific and technical content; the research effort in areas 1 and 2 should, however, be considerably strengthened.

Within research area 1 (sources, pathways and effects of pollutants), supplementary efforts are necessary in the topic "air quality", with emphasis on those subjects linked to "acid rain":

- direct effect of air pollutants (SO_2 , NO_x , HCl, ozone, photochemical oxidants and their atmospheric reaction products) on plants and terrestrial ecosystems;

(1) Standing Committee composed of high government officials advising the Commission (O.J. L 115, 01.05.1976)

- indirect effects of such air pollutants on plants and terrestrial ecosystems, e.g. via the acidification of soil and the mobilisation of phytotoxic elements;
- links between the effects of air pollutants and other factors involved in the observed phenomenon of severely damaged terrestrial ecosystems, in particular forests, such as drought, plant diseases, fungi and pests;
- effects of air pollutants and their reaction products on crop plants, in particular reduced productivity;
- effects of air pollutants and their reaction products on aquatic ecosystems (reduction of the population of fish and other aquatic organisms due to acidification and mobilisation of trace elements).

Contract research should be complemented by the coordination of national research in this area via a concerted action (see under 3.1).

Furthermore, it is proposed to include research on the effects of air pollution on buildings and monuments.

It is intended to limit the effort on investigating the chemistry of air pollutants in the atmosphere mainly to coordinating national research (see COST 61a under 2.1), not excluding, however, that selected contracts be awarded in specific areas so far insufficiently covered by national research.

Within research area 2 (reduction and prevention of pollution and nuisances), a substantially increased effort should be dedicated to the problems of research on waste management, essentially within the following topics (including economic aspects):

- effects of waste disposal on soils and groundwater,
- recovery of old waste disposal sites,
- treatment and recycling of toxic and dangerous waste, including the assessment of currently used treatment methods (e.g. incineration),
- management, disposal and reuse of demolition and construction waste (1), a topic not considered so far
 - . technical and economic research into the potential applications of wood waste from construction and demolition rubble,
 - . research into separation techniques, with a view to encouraging reuse, of wood, plastic, plaster, bituminous roofing material, textiles and other components of construction and demolition waste,

(1) This part of the proposal is based on:

- a draft R&D Programme in the area "Demolition, Re-use and Dismantling of Concrete", established by the Commission's Service with the assistance of a working party of national experts,
- a study prepared in 1980 for the Commission by Environmental Resources Limited, London (EUR 6619, published by The Construction Press Ltd., Lancaster).

- . research into the safe disposal of asbestos and asbestos products from demolition,
- . studies of the possibilities, particularly from an economic viewpoint, of the recycling of construction waste,
- . research into techniques and processes with regard to the demolition, recycling and dismantling of concrete,
- . research on the reuse of bituminous materials from road surfaces.

It is proposed, that a supplementary amount of 10 MECU be allocated for research in these two areas for the period 1984-1985 (5 MECU for research on effects of air pollutants, 5 MECU for research on waste).

2. Revision of Ongoing Concerted Actions

When, in 1981, the Sectoral R&D Programmed was approved, the three ongoing Concerted Actions

- Physical-Chemical Behaviour of Atmospheric Pollutants (COST 61a),
- Analysis of Organic Micropollutants in Water (COST 64b),
- Treatment and Use of Sewage Sludge (COST 68),

were incorporated and extended until 31 December 1983. For the period 1981-1983, the allocation for the coordination was 1 MECU including salaries for staff (2A, 1C).

The project "Coastal Benthic Ecosystems" (COST 47, category III), based on a memorandum of understanding (signed also by the European Communities), was effective as of April 1979 for a 5-year period.

It is proposed to revise these 4 projects and to implement substantially changed and updated programmes for the period 1984-1985 allocating the necessary funds for coordination, including the expenditures for the staff, assigned to these projects. The project "Coastal Benthic Ecosystems" should be transformed into a Community Concerted Action.

The Community-COST Concertation Committees for the COST Projects 61a, 64b and 68 and the Management Committee for COST Project 47 carefully reviewed the state of progress in their areas in the light of the results achieved and gave unanimously favourable opinions on the proposals for revision of the programmes outlined in the following; a more comprehensive description of the scientific and technical content is given in annex C to the draft programme decision.

2.1 Physico-Chemical Behaviour of Atmospheric Pollutants (COST Project 61a)

Although considerable progress has been made in this area, many problems remain to be investigated further, in particular with regard to the conversion processes resulting in acid depositions. In this specific area a task force was set up, and a workshop was held in Berlin on 9 September 1982, in order to identify research priorities (1).

2.2 Analysis of Organic Micropollutants in Water (COST Project 64b)

In view of the fact that instrumental development has reached a phase permitting detailed and reliable analysis of environmental samples, the programme has to undergo a major revision.

(1) Acid Deposition, Proceedings of an EEC-Workshop, D. Reidel Publishing Company, Dordrecht, 1983.

Consequently, instrumental research will in the future be limited mainly to a comparative assessment of available equipment. Emphasis will be given to practical application and to the elaboration of methods for the detection and analysis of specific compounds or groups of compounds, in particular of those likely to be regulated by the Council Directive on the discharge of dangerous substances to surface water. A list of 129 compounds has been recently subject of a communication of the Commission to the Council (1).

Consequently, the title of the project is to be changed to "Organic Micropollutants in the Aquatic Environment".

2.3 Treatment and Use of Sewage Sludge (COST Project 68)

The new programme regroups activities so far pursued within the framework of the Concerted Action "Treatment and Use of Sewage Sludge" (COST 68) and the agricultural research programme (Effluents from Livestock) as far as their continuation is justified; a number of new topics have been included.

Consequently, the title will be changed to "Treatment and Use of Organic Sludges and Liquid Agricultural Wastes".

2.4 Benthic Coastal Ecosystems (COST Project 47)

In this project, population dynamics of selected benthic species has been studied along the North Sea and Atlantic coast in 4 different undisturbed habitats

- subtidal sediments
- intertidal sediments
- subtidal rock
- intertidal rock

in view of establishing "baselines", necessary for the evaluation of the real effects of pollution. This programme is of a long-term nature.

It is intended to continue this project as a Community Concerted Action with the participation of COST Non-Member States. Efforts will be made to launch similar work for the Baltic and Mediterranean coast-lines.

3. New Concerted Actions to be Implemented

In the following areas, new Community Concerted Actions should be launched; they should be opened to cooperation with Non-Member States within the framework of COST (category I - COST projects); a more comprehensive description of the scientific and technical content is given in annex C to the draft programme decision.

3.1 Concerted Action "Air Pollution Effects on Terrestrial and Aquatic Ecosystems"

In addition to contract research suggested above under III.1, it is proposed to implement a concerted action aiming at a coordination of ongoing or planned research activities in this area in the Member Countries. A coordination with pertinent activities within the climatology subprogramme is foreseen.

(1) O.J. C 176, p. 3, 14. July 1982

3.2 Concerted Action "Indoor Air Quality and its Impact on Man"

With the aid of a group of experts, a detailed programme proposal has been drawn up. The objective of the concerted research action is to provide answers whether, in which conditions and to what extent IAQ may have an impact on human health and comfort, which serve as a basis for decisions on whether and how control measures have to be designed.

It is proposed to include the following topics:

- exposure determinations and estimates,
- health effects measurements,
- collection of exposure and health effects related data.

These topics have to be examined with respect to a variety of pollutants and pollutant classes among which NO₂, RSP (respirable suspended particulate), formaldehyde, organics and allergens appear to be of greatest importance, but also CO, SO₂ and asbestos or other mineral fibres may be of concern.

The proposed action will in principle consider IAQ in all non-industrial indoor spaces and its relation to outdoor air quality.

This concerted action will be implemented with a strong input from the JRC, which will also play a major role in the coordination process.

3.3 Concerted Action "Bird Protection"

With the exception of particular research focused on selected specific problems such as mentioned in Annex V of the Council Directive of 2nd April 1979 on the conservation of wild birds, it does not seem necessary to foresee a long-term continuation of contract research in this area. Therefore, a concerted action should be launched in order to promote the coordination of national research in this area which is particularly suitable for a Community concerted action in view of long migration distances of bird populations.

4. Contract Research in the Field of Climatology

Scientific content and allocations remain unchanged.

IV. CONTRIBUTION OF THE REVISED PROGRAMME TO THE FRAMEWORK PROGRAMME

The revised programme contributes to the scientific and technical objectives identified in the Framework Programme as follows:

	<u>Environmental Protection</u>	<u>Climatology</u>
- Developing agricultural productivity and improving the quality of agricultural products		20%
- Improving and developing new techniques and new products for the conventional industries	10%	
- Optimum use of raw materials	5%	5%
- Rational use of energy		20%
- Undertaking scientific and technical activities for the benefit of the developing countries		10%
- Improving safety and protecting health	35%	
- Protecting the environment	50%	45%
	100%	100%

V. BUDGET AND STAFF

The following supplementary budgetary allocations are necessary for the implementation of the revised programme:

- shared cost contracts in the area "ecological effects of air pollutants"	5	MECU
- shared cost contracts in the area "management, disposal and recycling of waste"	5	MECU
- extension of 4 on-going concerted actions during 1984/85	1	MECU
- implementation of 3 new concerted actions	0.9	MECU
- cost of additional staff (2A, 1B, 2C)	0.6	MECU
	<hr/>	
	12.5	MECU

ANNEX I

Opinion of the ACPM on the Draft Proposal of the Commission
for Revising the 3rd Environment Research Programme,
Sub-Programme Environmental Protection

The Committee discussed in detail the draft proposal for the revision of the 3rd Environment Research Programme at its meeting of 4 March 1983.

The general lines of the proposed revision are endorsed, and the need for strengthening the research efforts in the areas "ecological effects of air pollutants" and "management, disposal and recycling of waste" is recognised. The inclusion of research on "effects of air pollutants on buildings and monuments" is also supported. Those parts of the programme which are not subject to the revision need to be continued at the level of funding they received during the first phase.

The Committee emphasises the need to continue, but with substantial changes in their scientific content, the Concerted Actions

- Physical-Chemical Behaviour of Atmospheric Pollutants
- Analysis of Organic Micropollutants in Water
- Treatment and Use of Sewage Sludge
- Coastal Benthic Ecosystems (COST 47)

until the end of the programme. The suggested modifications and further development of these projects, already agreed by the respective Community-COST Concertation Committees and by the Management Committee of COST Project 47, are endorsed.

The Committee welcomes the initiative to launch new Concerted Actions in the areas:

- Effects of Air Pollutants on Terrestrial and Aquatic Ecosystems,
- Indoor Air Quality,
- Bird Protection.

The coordination of national research in these areas, possibly in association of COST-Non-Member States, would be a valuable contribution to European cooperation in environmental research.

The Committee is of the opinion that the programme revision is in line with the "proposal for a European scientific and technical strategy, framework programme 1984-1987" not only with regard to the objectives "improvement and safety and protection of health" and "protection of the environment and prevention of hazards", but also for almost all other Community goals identified in the framework programme.

The Committee recognises that, within the overall context of the framework programme, appropriate allocations and sufficient staff need to be made available for the revised programme.

The UK delegation considers that the existing, approved financial allocations were adequate and the new work should be accommodated by altering priorities within the programme.

II

(Preparatory Acts)

COMMISSION

Proposal for a Council Decision revising the sectoral research and development programme in the field of environment (environmental protection and climatology) — Indirect and Concerted Action — 1981 to 1985

*COM(83) 539 final**(Submitted by the Commission to the Council on 26 September 1983)*

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 235 thereof,

Having regard to the proposal from the Commission,

Having regard to the opinion of the European Parliament,

Having regard to the opinion of the Economic and Social Committee,

Whereas the Council in its Decision 81/213/EEC (1) adopted a multiannual research and development programme in the environmental field (indirect and concerted actions, 1981 to 1985);

Whereas Article 3 of the abovementioned Decision provides for a re-examination of the said programme and, if necessary, for a revision;

Whereas it seems appropriate to revise the programme in the view of new research requirements and of the Council resolution adopting the scientific

and technical objectives of the European Scientific and Technical Strategy-Framework Programme 1984 to 1987;

Whereas the Committee of Scientific and Technical Research (CREST) has given its opinion on the Commission proposal;

HAS DECIDED AS FOLLOWS:

Article 1

The Annex to Decision 81/213/EEC shall, with effect from 1 January 1984, be amended as indicated in the Annex to this Decision. The Annex shall form an integrated part of this Decision.

Article 2

The funds estimated as necessary for the execution of the revised programme shall be 54 500 000 ECU (instead of 42 000 000 ECU), including the Community contribution to the coordination of the concerted actions listed in part C of the Annex and including expenditure of a staff of 21 (instead of 16). All the figures given shall serve strictly as a guide.

(1) OJ No L 101, 11. 4. 1981, p. 1.

ANNEX

A. SCIENTIFIC AND TECHNICAL CONTENT

— unchanged —

B. DISTRIBUTION OF FUNDS

SUB-PROGRAMME I: Environment Protection:

43 000 000 ECU — indirect action
3 500 000 ECU — concerted action

SUB-PROGRAMME II: Climatology:

8 000 000 ECU

C. SCIENTIFIC PROGRAMME OF THE CONCERTED ACTIONS

1. Physico-chemical behaviour of atmospheric pollutants

- (a) improvement and standardization of analytical methods, especially for NO_x , hydrocarbons and photochemical oxidants;
- (b) elucidation of mechanisms and rate constants of the reactions between atmospheric pollutants and of their reactions with natural constituents of the atmosphere, in particular in the aqueous state, including: oxidation and degradation chemistry of selected atmospheric pollutants in fresh and sea-water, reactions with soil constituents, and the investigation of catalytic processes in cloud and rain-water chemistry;
- (c) investigation of the physico-chemical processes leading to the formation of particles, characterization of the chemical and physical nature of very fine aerosols, and determination of the chemical composition of aerosols;
- (d) identification and quantification of sources and sinks of various pollutants, especially for nitrogen oxides;
- (e) investigation of phenomena leading to 'acid deposition' with particular emphasis on:
 - conversion, transport and deposition (dry and wet) of SO_2 , NO_x and aerosol particles,
 - analysis of precipitation chemistry data for acidity trends,
 - NO_x chemistry in cloud droplets and chemical composition of cloud and rain water,
 - dry deposition of NO_x and HNO_3 ,
 - the role of oxidizing agents like OH , HO_2 , H_2O_2 ,
 - physico-chemical conversion of air pollutants after deposition, considering water bodies and soil,
 - analytical techniques for the measurement of ammonia, nitric acid and hydrogen peroxide in both gas and liquid phase at low concentrations,
 - analytical methods for the determination of acidity of aerosols;
- (f) Modelling of the diffusion of heavy gases (chlorine, phosgene, hydrocarbons, solvents) after accidental release, including development of three-dimensional models and testing in wind-tunnels and under field conditions;
- (g) Elaboration of test protocols which permit to predict abiotic degradability of chemicals, in particular for persistent compounds.

2. Organic micropollutants in the aquatic environment

- (a) Analytical methodologies and data treatment
 - Basic analytical techniques, including sampling and sample treatment, gas chromatography, high pressure liquid chromatography, mass spectrometry,
 - Specific analytical problems, in particular analysis of selected classes of compounds, such as those likely to be regulated by Council Directive 76/464/EEC, chlorinated paraffins, tensides, optical brighteners and metal-organic compounds,
 - Collection and treatment of analytical data;
- (b) Physical/chemical behaviour of organic micropollutants in the aquatic environment
 - distribution and transport mechanisms,
 - structure/activity relationships,
 - bio-availability and bio-accumulation;
- (c) Transformation reactions in the aquatic environment
 - chemical and photochemical reactions,
 - biological transformations;
- (d) Behaviour and transformation of organic micropollutants in water treatment processes
 - infiltration,
 - waste-water treatment,
 - drinking-water treatment (including haloform formation).

3. Treatment and use of organic sludges and liquid agricultural wastes

- (a) Treatment of sludges and agricultural wastes
 - further improvement of conventional treatment methods, mainly with regard to their economic aspects, and of processes for biogas production from sludges and manures,
 - study of technologies specifically applicable to small plants and of processes to eliminate heavy metals at their source;
- (b) Analysis of sludges and residues
 - development and standardization of economic multi-element methods for the analysis of trace elements in sludges, soils and plants, and for the analysis of organic pollutants;
- (c) Hygienic aspects of treatment and use of sludges
 - elaboration and improvement of methods for the detection and identification of bacteria, viruses and other pathogens, and study of their survival and contamination potential,
 - investigations of the efficiency of hygienization processes, definition of 'indicator organisms';
- (d) Nuisances
 - odour characterization and emission control;
- (e) Environmental effects of spreading of sludges and manure
 - long-term field experiments on the accumulation of heavy metals, their availability to crops and on transfer of pollutants via soil to plants, and assessment of various application methods with regard to ground and surface water pollution;

(f) Improvement of land-use of sludge and manure

- long-term field experiments on fertilizing value and soil improvement properties of sludges and manures,
- improvement of treatment processes and spreading equipment with regard to optimum land use,
- study of the agricultural value of residues from treatment processes,
- use of sludges and derived products for land reclamation and specific crops (e.g. biomass production);

(g) Use of certain residues as animal feed.

4. Benthic coastal ecosystems

Implementation of 'baseline-studies' for selected key species in undisturbed conditions along the European North Sea and Atlantic coast, in the Mediterranean and in the Baltic Sea for the following habitats:

- subtidal sediments,
- intertidal sediments,
- subtidal rock,
- intertidal rock.

Assessment of the role of

- local physical factors,
- biological interactions,
- climatic and hydrographic factors on the population dynamics, of selected components of benthic coastal ecosystems.

5. Air pollution effects on terrestrial and aquatic ecosystems

- (a) Direct effect of air pollutants (SO₂, NO_x, HCl, ozone, photochemical oxidants and their atmospheric reaction products) on plants and terrestrial ecosystems,
- (b) Indirect effects of such air pollutants on plants and terrestrial ecosystems, e.g. via the acidification of soil and the mobilization of phytotoxic elements;
- (c) Links between the effects of air pollutants and other factors involved in the observed phenomenon of severely damaged terrestrial ecosystems, in particular forests, such as drought, plant diseases, fungi and pests;
- (d) Effects of air pollutants and their reaction products on crop plants, in particular reduced productivity;
- (e) Effects of air pollutants and their reaction products on aquatic ecosystems (reduction of the population of fish and other aquatic organisms due to acidification and mobilization of trace elements).

6. Indoor air quality and its impact on man

Investigation of a variety of indoor pollutants and pollutant classes, in particular NO₂, RSP (respirable suspended particulate), formaldehyde, organics, allergens, CO, SO₂, asbestos and other mineral fibres, comprising

- (a) Exposure determination and estimates:
 - modelling,
 - source strength determinations,
 - infiltration and ventilation rate determinations,

- methods of field measurements,
 - spot sampling,
 - time integrated sampling,
 - continuous monitoring,
 - personal and population exposure,
 - biological monitoring.

(b) Health effects measurements

- controlled human exposure studies,
- design of sequential studies,
- epidemiological studies.

(c) Collection of exposure and health effect related data.

7. Bird protection

- (a) Habitat selection by birds and breeding distribution;
- (b) Passerine migrations;
- (c) Waterfowl census according to the Annex V of the Directive on Conservation of Wild Birds (*);
- (d) Requirements of bird species dependent upon threatened habitats (notably and other wetlands, scrubland, etc.);
- (e) Habitat requirements and biology of endangered species;
- (f) Collection and compilation of the results of research on bird conservation and on wintering sites in Africa and exploitation of the information already available.

D. TERMS OF REFERENCE OF THE COMMITTEE REFERRED TO IN ARTICLE 5 (a)

— unchanged —

(*) OJ No L 103, 25. 4. 1979.

II

(Acts whose publication is not obligatory)

COUNCIL

COUNCIL DECISION

of 3 March 1981

adopting a sectoral research and development programme in the field of environment (environmental protection and climatology) — indirect and concerted actions — (1981 to 1985)

(81/213/EEC)

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 235 thereof,

Having regard to the proposal from the Commission,

Having regard to the opinion of the European Parliament ⁽¹⁾,

Having regard to the opinion of the Economic and Social Committee ⁽²⁾,

Whereas Article 2 of the Treaty assigns to the Community the task *inter alia* of promoting throughout the Community a harmonious development of economic activities, a continuous and balanced expansion and an accelerated raising of the standard of living;

Whereas research in the field of environment contributes to the attainment of these objectives and has been identified as a sector of priority interest by the Council in its conclusions of 20 December 1979;

Whereas, in its resolution of 17 May 1977 ⁽³⁾, the Council approved the objectives and principles of a policy for the environment in the Community as well as a general description of the projects to be undertaken at Community level;

Whereas, therefore, the research projects dealt with by this Decision seem necessary to attain certain objectives of the Community within the framework of the common market;

Whereas, by its resolution of 14 January 1974 ⁽⁴⁾, the Council adopted an initial outline programme of the European Communities in the field of science and technology, and stressed that the whole range of available ways and means of action should be used;

Whereas the Community is responsible for the conclusion of agreements with third countries in the areas covered by this Decision; whereas it is advisable, as soon as this Decision is adopted, to open negotiations with the States concerned so that such agreements can be rapidly concluded;

⁽¹⁾ OJ No C 28, 9. 2. 1981, p. 60.

⁽²⁾ OJ No C 353, 31. 12. 1980, p. 15.

⁽³⁾ OJ No C 139, 13. 6. 1977, p. 1.

⁽⁴⁾ OJ No C 7, 29. 1. 1974, p. 6.

Whereas the Council has adopted Community concerted actions in the fields of:

- treatment and use of sewage sludge, on 27 September 1977 ⁽¹⁾,
- the analysis of organic micro-pollutants in water, on 9 October 1978 ⁽²⁾,
- the physico-chemical behaviour of atmospheric pollutants, on 9 October 1978 ⁽³⁾;

Whereas the Council has concluded Community-COST concertation agreements on concerted action projects in the fields of:

- treatment and use of sewage sludge, on 19 March 1979 ⁽⁴⁾,
- the analysis of organic micro-pollutants in water, on 18 December 1979 ⁽⁵⁾,
- the physico-chemical behaviour of atmospheric pollutants, on 18 December 1979 ⁽⁶⁾;

Whereas the Member States intend, as part of the rules and procedures applicable to their national programmes, to carry out the research described in Tables 1, 2 and 3 of point C of the Annex, and are prepared to integrate such research into a process of coordination at Community level until 31 December 1983;

Whereas a memorandum of understanding for the implementation of action COST 47 (Benthic Coastal Ecology) has been signed;

Whereas, on 18 December 1979 ⁽⁷⁾, the Council adopted a multiannual research programme of the European Economic Community in the field of climatology;

Whereas, on 13 March 1980 ⁽⁸⁾, the Council adopted a multiannual programme for the Joint Research Centre which includes research activities in the field of the environment;

Whereas, in its conclusions of 20 December 1979, the Council invited the Commission to submit pro-

posals aimed at the rationalization of structures for the preparation, examination and implementation of Community research and development programmes; whereas a grouping of indirect and concerted actions in the field of the environment would constitute a first contribution towards meeting these objectives;

Whereas the Treaty does not provide the specific powers of action required for these ends;

Whereas the Committee of Scientific and Technological Research (Crest) has given its opinion on the Commission's proposal,

HAS DECIDED AS FOLLOWS:

Article 1

1. A programme of research and development of the European Economic Community in the field of the environment (environmental protection and climatology) is hereby adopted for a period of five years from 1 January 1981, as described in the Annex.

2. The programme includes indirect and concerted actions.

The indirect actions are carried out by means of contracts.

The concerted actions consist of the coordination at Community level of research activities which are part of research programmes of the Member States and, where applicable, of the Community.

Concerted actions 1, 2 and 4 under point A of the Annex will end on 31 December 1983 unless they are extended under the terms of Article 3.

Article 2

The appropriations necessary for the implementation of the programme, the amount of which shall be fixed at 43 000 000 ECU, including the means necessary for the coordination of concerted actions 1, 2 and 4 under point A of the Annex and for a complement of 16 staff, shall be entered in the budget of the European Communities.

The internal distribution of funds is shown under point B of the Annex.

⁽¹⁾ OJ No L 267, 19. 10. 1977, p. 35.

⁽²⁾ OJ No L 311, 4. 11. 1978, p. 6.

⁽³⁾ OJ No L 311, 4. 11. 1978, p. 10.

⁽⁴⁾ OJ No L 72, 23. 3. 1979, p. 35.

⁽⁵⁾ OJ No L 39, 15. 2. 1980, p. 24.

⁽⁶⁾ OJ No L 39, 15. 2. 1980, p. 18.

⁽⁷⁾ OJ No L 12, 17. 1. 1980, p. 24.

⁽⁸⁾ OJ No L 72, 18. 3. 1980, p. 11.

In the light of experience gained during the implementation of the programme, and provided the opinion of Crest and of the committees referred to in Article 5 is secured beforehand, the Commission is authorized to transfer funds from one area to another within the same sub-programme, provided that such transfers do not result in an increase or a reduction of more than 10% in the original appropriation for each area of research as envisaged.

Article 3

The programme shall be re-examined at the end of the third year; this re-examination may lead to a revision of the programme in the course of the fourth year following the appropriate procedures, and after the Committees referred to in Article 5 have been consulted. The European Parliament shall be informed of the results of the re-examination.

Article 4

The Commission shall be responsible for the execution of the programme with regard to the indirect actions and shall be responsible for the coordination with regard to the concerted actions.

It will decide, in the framework of the programme, on the detailed implementation, particularly concerning the breakdown of the work between indirect and concerted actions, and the launching of concerted and coordination actions, as described in the Annex.

Article 5

The Commission will be assisted in the tasks listed in Article 4 by the following Committees:

- (a) the Advisory Committee on Programme Management in the field of Environment Protection;
- (b) the Advisory Committee on Programme Management in the field of Climatology.

As far as the indirect actions are concerned, the terms of reference and composition of these Committees will be in accordance with the Council resolution of 18 July 1977 on advisory committees for research programme management ⁽¹⁾.

For the concerted actions, the terms of reference of the Committee under (a) above are defined in point D of the Annex.

Article 6

With regard to indirect actions, the dissemination of the information arising from their implementation shall be in accordance with Council Regulation (EEC) No 2380/74 of 17 September 1974 adopting provisions for the dissemination of information relating to research programmes for the European Economic Community ⁽²⁾.

Article 7

1. With regard to the concerted actions in accordance with a procedure to be laid down by the Commission, in agreement with the Committee referred to in Article 5 (a), the participating Member States and the Community shall regularly exchange all useful information concerning the execution of the research covered by such activities.

The participating Member States shall provide the Commission with all information relevant for coordination purposes. They shall also endeavour to provide the Commission with information on similar research planned or carried out by bodies which are not under their authority.

Any information shall be treated as confidential if so requested by the Member State which provides it.

2. At the completion of the programme, the Commission, in agreement with the Committee referred to in Article 5 (a), shall send to the Member States and the European Parliament a summary report on the implementation and results of the concerted actions.

It shall publish this report six months after the latter has been sent to the Member States, unless a Member State objects. In the latter case, the report shall be distributed, in agreement with the said Committee, only to those institutions and enterprises that request it and whose research or production activities justify access to the results of research arising from the concerted actions. The Commission shall make the necessary arrangements for the report to remain confidential and not to be divulged to third parties.

⁽¹⁾ OJ No C 192, 11. 8. 1977, p. 1.

⁽²⁾ OJ No L 255, 20. 9. 1974, p. 1.

Article 8

1. In accordance with Article 228 of the Treaty, the Community may conclude agreements with third States, in particular those involved in European collaboration in the field of scientific and technical research (COST) with a view to associating them wholly or partly with this programme.

2. The Commission is hereby authorized to negotiate the agreements referred to in paragraph 1.

The agreements with third States participating in COST shall be negotiated in accordance with the conclusions of the Council of 18 July 1978 concerning European cooperation in the field of science and technology (COST) ⁽¹⁾.

⁽¹⁾ OJ No C 100, 21. 4. 1979, p. 1.

Article 9

The following Council Decisions:

- Decision 78/888/EEC of 9 October 1978 adopting a concerted action of the European Economic Community in the field of the analysis of organic micropollutants in water,
- Decision 78/889/EEC of 9 October 1978 adopting a concerted action of the European Economic Community in the field of physico-chemical behaviour of atmospheric pollutants,
- Decision 80/27/EEC of 18 December 1979 adopting a multiannual research programme of the European Economic Community in the field of climatology (indirect action 1980 to 1984),

are repealed with effect from 1 January 1981.

Done at Brussels, 3 March 1981.

For the Council

The President

G. M. V. van AARDENNE

ANNEX

A. SCIENTIFIC AND TECHNICAL CONTENT

SUB-PROGRAMME I: ENVIRONMENT PROTECTION

	Indirect action (contracts and coordination)	Concerted action
Research area 1: Sources, pathways and effects of pollutants		
1.1. Heavy metals	x	—
1.2. Organic micro-pollutants and new chemical products	x	(1) Analysis of organic micro-pollutants in water (COST 64b bis) until 31 December 1983. Research topics and distribution of work among Member States are shown in Table 1, point C.
1.3. Asbestos and other fibres	x	—
1.4. Air quality	x	(2) Physico-chemical behaviour of atmospheric pollutants (COST 61a bis) (until 31 December 1983). Research topics and distribution of work among Member States are shown in Table 2, point C.
1.5. Surface and underground freshwater quality	x	—
1.6. Thermal pollution	x	—
1.7. Marine environment quality	x	(3) Benthic coastal ecology (COST 47): 1. Sedimentary bottoms. 2. Rocky bottoms — intertidal. 3. Rocky bottoms — subtidal.
1.8. Noise pollution	x	—
Research area 2: Reduction and prevention of pollution and nuisances		
2.1. Sewage sludge	—	(4) Treatment and use of sewage sludge (COST 68 bis) (until 31 December 1983). Research topics and distribution among Member States are shown in Table 3, point C.
2.2. Pollution abatement technologies	x	—
2.3. Clean technologies	x	—
2.4. Ecological effects of solid waste disposal	x	—
2.5. Oil pollution cleaning techniques	x	x
2.6. Impact of new technologies	x	x

	Indirect action (contracts and coordination)	Concerted action
Research area 3: Protection, conservation and management of natural environments		
3.1. Ecosystems studies	x	—
3.2. Biogeochemical cycles	x	—
3.3. Ecosystems conservation	x	—
3.4. Bird protection	x	x
3.5. Reclamation of damaged ecosystems	x	—
Research area 4: Environment information management		
4.1. Data bank on environmental chemicals	x	—
4.2. Evaluation, storage and exploration of data	x	—
4.3. Ecological cartography	x	—
Research area 5: Complex interactive systems: man-environment interactions	x	x

SUB-PROGRAMME II: CLIMATOLOGY (indirect action)

Research area 1: Understanding climate

1.1. Reconstruction of past climates.

Exploration and analysis of:

- (a) natural records;
- (b) observational and other historical records.

1.2. Climate modelling and prediction.

Investigations to improve models which are capable of simulating climate, especially by including the slowly-varying components of the climatic system, and of assessing climate predictability on time and space scales that are of interest to the Community.

Research area 2: Man-climate interactions

2.1. Climate variability and European resources:

- (a) impact on agricultural and water resources;
- (b) climatic hazards evaluation;
- (c) impact on energy requirements, use and production.

2.2. Man's influence on climate:

- (a) chemical pollution of the atmosphere, with special emphasis on carbon dioxide accumulation;
- (b) release of energy.

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TABLE 2

PHYSICO-CHEMICAL BEHAVIOUR OF ATMOSPHERIC POLLUTANTS

Contributions by the Member States and the Joint Research Centre (JRC) to the concerted project by research topics

Research topics	Division of research work								
	B	D	DK	F	I	IRL	NL	UK	JRC
1. Studies on the conversion and transport of atmospheric pollutants:									
(a) laboratory studies		x		x	x	x	x	x	x
(b) field studies	x	x	x	x	x		x	x	x
(c) modelling		x			x		x		x
2. Studies on the elimination and absorption of atmospheric pollutants	x			x	x			x	

TABLE 3

TREATMENT AND USE OF SEWAGE SLUDGE

Contribution by the Member States, to the concerted project by research topics

Research topics	Division of research work							
	B Lux.	D	DK	F	I	IRL	NL	UK
1. Sludge stabilization and odour problems:								
— Definition and determination of 'degree of stability' and relation to odour nuisance			x	x				x
— Comparative evaluation of stabilization procedures		x	x		x			
2. Problems related to sludge dewatering:								
— Research on water binding forces							x	
— Development and standardization of methods for the assessment of dewatering properties	x	x		x	x			x
— Problems related to the use of flocculants		x		x				x
— Comparative evaluation of thickening and dewatering equipment					x		x	
3. Analytical problems related to sludge treatment and use:								
— Characterization of pathogens and evaluation of disinfection procedures	x	x	x					
— Characterization and determination of pollutants (heavy metals, persistent organic compounds) in sludge and development of standardized analytical methods	x			x				x
4. Environmental problems related to sludge use:								
— Special processing of sludge for agricultural use (e.g. composting) including the improvement of disinfection procedures and pollutant removal		x		x	x		x	
— Transfer of pollutants to plants and harmful effects on vegetation			x	x			x	x
— Effects of long range sludge application on soil quality and ground water	x	x		x		x		x
— Optimum land use of sludge, including sludge from dephosphatation plants		x		x			x	x

D. TERMS OF REFERENCE OF THE COMMITTEE REFERRED TO IN ARTICLE 5 (a)

1. For each concerted action, the Committee shall:
 - 1.1. contribute to the optimum execution of the programme by giving its opinion on all of its aspects;
 - 1.2. evaluate the results of the project and draw conclusions as to their application;
 - 1.3. be responsible for the exchange of information referred to in Article 7 (1);
 - 1.4. keep abreast of national research being done in the fields covered by the project, and more especially of scientific and technical developments likely to affect the execution of the project;
 2. The Committee's reports and opinions shall be forwarded to the Commission and the Member States participating in the project. The Commission shall forward these opinions to the Crest.
-

FINANCIAL DATA
CONCERNING THE REVISION OF SECTORAL R & D PROGRAMME
IN THE FIELD OF ENVIRONMENT
 (Indirect and concerted actions)
 1981-1985

BUDGET HEADING	: ENVIRONMENT	Article 732
		Item 7328
<u>Entitled</u>	<u>Budget</u> <u>(in MECU)</u>	<u>Staff</u>
Protection of the environment	43.000	13**
Organic micropollutants in the aquatic environment	0.650	1
Physico-chemical behaviour of atmospheric pollutants	0.650	2
Coastal benthic ecosystems	0.250	-
Treatment and use of organic sludges and liquid agricultural wastes	0.450	-
Effects of air pollutants on terrestrial and aquatic ecosystems	0.500	2
Bird protection	0.500	-
Indoor air quality	0.500	-
Climatology	8.000	3
	<hr/>	<hr/>
TOTAL	54.500	21

** for 1984 11 agents

FINANCIAL RECORD

- 1. Relevant Budget Heading: 7328
- 2. Title of the Budgetary Heading: Environment
(indirect and concerted actions)
- 3. Legal Basis:
 - Implementation of Article 235 of the Treaty establishing the European Economic Communities
 - Council Decision of 3 March 1981 OJ L 101 of 11 April 1981
 - Revision of programme. Council Decision of
- 4. Descriptions, Objectives and Justifications of the Project:

4.1. Descriptions

a) Protection of the Environment (indirect action)

Continuation of a coordinated research programme on the environment carried out essentially by means of shared-cost contracts concluded with research bodies in the Member States and relating to:

- 1. Sources, pathways and effects of pollutants,
- 2. Reduction and prevention of pollution and nuisances, including clean technologies,
- 3. Protection, conservation and management of the natural environment,
- 4. Management of the information concerning the environment (Data banks),
- 5. Overall man-environment interaction.

b) Protection of the Environment (concerted actions)

Coordination of the most important research work in the following areas:

- 1. Organic micropollutants in the aquatic environment

2. Physico-chemical behaviour of atmospheric pollutants,
3. Coastal benthic ecosystems,
4. Treatment and use of organic sludges and liquid agricultural wastes,
5. Effects of air pollutants on terrestrial and aquatic ecosystems,
6. Bird protection,
7. Indoor air quality.

The research work is being carried out or planned in the Member States.

An association of non-member European States is also envisaged.

c) Climatology (indirect action)

Programme of research into the mechanism and variability of climate to be carried out by means of shared-cost contracts to be concluded with research bodies in the Member States and relating to:

1. Studies of climate mechanism and reconstruction of previous climates,
2. Studies into the effects of the variability of climate on certain resources, in particular water, and on energy requirements,
3. Studies into the effects of certain human activities, in particular these giving rise to pollution, on climate.

4.2. Objectives

a) Protection of the Environment

To ensure a scientific and technical support to the Community policy on the environment (3rd action programme of the European Communities in the field of environment, Council resolution of 7 February 1983).

b) Concerted Actions

Development and extension of research work carried out under Community-COST agreements.

c) Climatology

To help understand climate mechanism and to solve the problems caused by the effects of climatic variability on major resources. To contribute to the reduction of climatic risks caused by man's exploitation and pollution of the environment.

4.3. Justificationsa) Protection of the Environment

The execution of coordinated research in the Member States permits to avoid duplication of efforts and to optimise the results through the mobilisation of specialised laboratories in order to solve problems of common interest.

b) Concerted Actions

The proposed research is part of the Sectoral Programme in the field of Environment.

c) Climatology

It is vital to have better techniques for forecasting the likely effects of climatic changes especially on water resources and on agricultural output. It is also important to assess to what extent climate can change as a function of human activity.

5. FINANCIAL IMPLICATIONS IN RESPECT OF INTERVENTION APPROPRIATIONS
(including expenditure on staff and administrative and technical expenditure)

5.1. Total cost for the expected duration 84,064,200 ECU ***

5.2. Proportion financed from:

- the Community budget 54,500,000 ECU
- national budgets 29,564,200 ECU ***
- other sectors at national level (possible contributions from non-member states)

5.3. Multi-annual timetable

5.3.1.1. Appropriations for commitment in ECU

Type of expenditure	1981*	1982*	1983*	1984**	1985**	1986	TOTAL
Staff			947,100	1,288,100	1,378,250	-	
Administration			646,000	1,378,300	1,557,550	pm	
Contracts			8,406,900	13,280,600	3,894,200	pm	
Total	2,690,106	19,032,894	10,000,000	15,947,000	6,830,000	pm	54,500,000

5.3.1.2. Appropriations for payment in ECU

Type of expenditure	1981*	1982*	1983*	1984**	1985**	1986	TOTAL
Staff			947,100	1,288,100	1,378,250	-	
Administration			646,000	1,378,300	1,557,550	pm	
Contracts			8,406,900	13,080,600	10,568,200	9,274,000	
Total	861,120	5,113,880	10,000,000	15,747,000	13,504,000	9,274,000	54,500,000

* Current programme. ** Current programme + Revision
*** Based on a Community contribution of 50% on shared-cost contracts for 1983-1985.

5.3.2. Method of calculation

a) Staff expenditure

Requirements have been calculated on the basis of a staff complement of 21 persons **, i.e.:

12 category A staff

2 category B staff

7 category C staff

Apart from the actual staff complement, the calculations also take account of the rates of salary increases of Commission staff used to estimate the appropriations entered in the 1984 budget; the estimated overall increases for subsequent years are based on the rate of change in the general Community price index used in drawing up the triennial estimates, i.e. : 7% per annum.

b) Administrative and/or technical expenditure

This expenditure specifically covers the cost of missions, organization of meetings, financial participation in the organization of symposia or meetings, etc. It has been estimated on the basis of average requirements.

c) Expenditure on contracts

This expenditure covers the financial participation of the Community in research carried out under shared-cost contracts to be concluded with research institutions in the Member States specialized in the environmental field, study contracts and experts at 100%.

Since the specific nature of the various topics and the qualifications of the contracting parties are likely to vary, it has not been possible to devise a uniform method of calculation. Consequently, the estimate of requirements is a hypothetical one based on the number of contracts to be negotiated and on average financial participation by the ./...

** For 1984, the staff complement requested in the budget is 19.

Community approximating to 50% of total costs. At all events, the Advisory Committee on Programme Management will be consulted over the allocation of the appropriations.

- 6. Financial implication in respect of appropriations for staff and current administrative expenditure:
(see point 5 above)
- 7. Financing of expenditure:
7.4. The requisite appropriations to cover the Community's participation in this project are to be entered under future budgets.
- 8. Implications in respect of revenue:
 - Community taxes on officials' salaries
 - Officials' contributions to the pension scheme
 - Possible contributions from non-member states.
- 9. Type of monitoring to be applied:
 - Administrative checks by the DG for Financial Control with regard to the implementation of the budget and to ensure that the expenditure has been incurred in a regular and proper manner plus checks carried out by the Contracts Service of DG XII.
 - Scientific checks: ACPM - COMAC

Competent officials from DG XII.