

# COMMISSION OF THE EUROPEAN COMMUNITIES

COM(75) 353 final

Brussels, 15 July 1975

PROPOSAL FOR A MULTIANNUAL  
ENVIRONMENTAL RESEARCH AND DEVELOPMENT PROGRAMME  
OF THE EUROPEAN ECONOMIC COMMUNITY  
(INDIRECT ACTION) 1976-1980

(PRESENTED BY THE COMMISSION TO THE COUNCIL)

COM(75) 353 final

## ENVIRONMENTAL RESEARCH PROGRAMME - INDIRECT ACTION (1976-1980)

Table of Contents

	Page
1. Introduction	2
1.1. Development of environmental research activities of the European Communities	2
1.2. Implementation of the First Environmental Research Programme (Indirect Action)	4
2. The Second Environmental Research Programme (Indirect Action)	6
2.1. Motivation - Ways of implementation	6
2.1.1. Motivation	6
2.1.2. Ways of implementation	9
2.2. Contents of the Second Programme	10
2.2.1. The main research areas	10
2.2.2. Detailed contents	11
2.2.2. 1. Research area 1 (criteria research)	12
2.2.2. 1.1. Heavy metals	13
2.2.2. 1.2. Organic micropollutants	14
2.2.2. 1.3. Asbestos and other fibrous materials	14
2.2.2. 1.4. "New" chemicals	14
2.2.2. 1.5. Air "Quality"	15
2.2.2. 1.6. Water "Quality"	16
2.2.2. 1.7. Waste heat (thermal pollution)	16
2.2.2. 1.8. Marine pollution	17
2.2.2. 1.9. Noise pollution	17
2.2.2. 2. Research area 2 (information management) ECDIN Project	18
2.2.2. 3. Research area 3 (reduction and prevention of pollutions and nuisances)	18
2.2.2. 3.1. Water pollution abatement	19
2.2.2. 3.2. Waste disposal	20
2.2.2. 4. Research area 4 (improvement of the environment)	20
2.3. Management	21
2.4. Ways and Means - Budget	22
3. Proposal for a Council Decision and Annex	24
Annex : Research activities of the European Communities in the environmental field : brief review of the situation to-date	28

ENVIRONMENTAL RESEARCH PROGRAMME - INDIRECT ACTION (1976-1980)

1. INTRODUCTION

1.1. Development of environmental research activities of the European Communities.

Attempts to coordinate environmental research at Community level started in 1967\* when the PREST (Working Party on Scientific and Technical Research Policy of the Medium-Term Economic Policy Committee), considering that environmental protection was a most appropriate subject for scientific cooperation in the Community, established an expert group on pollution and nuisances which, later on, was taken over by the COST (Scientific and Technical Cooperation) Committee and assigned to it the task of preparing research projects to be undertaken jointly. The first concrete results came out on 23 November 1971, with the signature of three COST agreements involving most member states of the EEC as well as several third countries. These dealt with very specific topics, to wit the physico-chemical behaviour of sulphur dioxide in the atmosphere (COST 61a), the analysis of organic micropollutants in water (COST 64b) and sewage sludge processing (COST 68).

In the meantime preparations were made for the inclusion of non-nuclear research, i.a. on environmental protection, in the programme of the Joint Research Center. An arrangement was eventually concluded in 1972 for carrying out environmental research at the Ispra establishment under a contract between the 6 member states and the JRC for a period of one year. This made it possible to establish the main lines of the direct action programme in this field, including an effective involvement in the subject matter of two of the COST projects (61a and 64b).

---

\* It should be noted, however, that research on the effects of ionizing radiation and environmental implications thereof has been carried out under the Euratom treaty since 1961.

During 1972 and the beginning of 1973 negotiations were held in parallel for the acceptance by the Council, on the one hand, of a Programme of Action on the Environment and, on the other, of a first Multiannual Research Programme in environmental protection. The latter was considered from the outset as having to include both a direct action to be carried out at the JRC, and an indirect action involving a number of specialized research organizations of the member states. Indeed, the input from the JRC, albeit important in certain fields, had to be relatively limited in quantity in view of the skilled scientific manpower available. Yet it was felt that a Community programme, in order to make a significant impact in solving environmental problems, must reach a minimum critical size and form a coherent body of research bearing on a variety of subjects. Decisions were eventually made by the Council on 14 May and 18 June 1973 for the research programme and on 19 July and 22 November 1973 for the Action Programme.

The first common research programme (direct and indirect actions) was designed specifically to provide scientific and technical support to the sectoral policy of the Community on environment, essentially with regard to Part II, Title 1 "Reduction of Pollution and Nuisances" of the Action Programme (published in the Official Journal of the European Communities, Vol. 16 n° C 112 of 20 December 1973), and particularly to the actions concerned with 1) the objective evaluation of the risks to human health and to the environment from pollution, 2) the improvement of measurements of pollution, 3) the management of environmental information.

The direct action includes research work under the following headings :

- analysis and monitoring of pollution (including development of a multidetection unit, remote sensing of air pollutants, and a pilot data bank on environmental chemicals)
- fate and effects of pollutants
- models and system analysis applied to the eutrophication of a lake and to air pollution
- theoretical studies on thermal pollution and catalytic oxidation of water pollutants.

The indirect action, to which a maximum amount of 6.3 MUA was allocated until 31 December 1975 for the conclusion of shared-cost research contracts, comprises the following 6 topics :

- 1) epidemiological surveys of the effects of air and water pollution;
- 2) harmful effects of lead;
- 3) effects of micropollutants on man;
- 4) ecological effects of water pollution;
- 5) remote sensing of air pollution;
- 6) data bank on environmental chemicals.

## 1.2. Implementation of the First Environmental Research Programme

### (Indirect Action) \*

The first programme, decided by the Council on 18 June 1973, became actually operational with the creation, on 10 December 1973, of the Advisory Committee on Programme Management for Environmental Research which met for the first time on 28-29 January 1974. Prior to this, a call for research proposals published in the Official Journal of the European Communities on 28 July 1973, as well as contacts with government authorities involved in environmental research management in the member states, had resulted in the submission of a large number of applications.

The Commission services and the Advisory Committee examined these proposals and selected a number of them on the basis of the following criteria :

- a) relevance to the overall programme ;
- b) scientific value of proposal ;
- c) possibility of coordination with other projects in both the direct and indirect actions as well as with national research programmes ;
- d) prospect of success of planned work ;
- e) cost ;
- f) provisions made for complementary financemnt.,

As of 31 January 1975, 125 shared-cost contracts (for which the maximum contribution of the Community was fixed as a general rule at 50 % of total cost) were signed or under preparation of which 10 are under topic 1, 27 under topic 2, 24 under topic 3, 38 under topic 4, 16 under topic 5, 10 under topic 6.

A few research contracts will still be concluded during 1975.

---

\* A brief review of the environmental research activities of the E.E.C. to-date is given in the annex.

In most cases, obviously, only preliminary results are available at present. For administrative reasons all contracts must terminate on 31 December 1975 but a number of important projects which have been initiated will not be completed then and should be pursued during part of the second programme.

The current yearly level of expenditure for this programme is about 3 MUC for the Community budget, the total cost being about 6 MUC.

Following is a sample of the coordinated projects initiated during the first programme :

- a) an epidemiological survey aimed at establishing correlations between air pollution and respiratory diseases in schoolchildren, carried out simultaneously by 10 institutes following the same protocol and involving 20.000 subjects;
- b) a study of pollution in streams of the Luxemburg - Saarland - Lorraine region, undertaken jointly by Belgian, French, German and Luxemburger laboratories in relation with the establishment of quality objectives for these water-courses;
- c) a pilot data bank on environmental chemicals (ECDIN project) carried out by the JRC and seven other organizations; such a data bank makes it possible to collect, store and retrieve all relevant information needed, i.a., to prepare regulations on environmental chemicals and to determine the best counter-measures in case of accidental contamination;
- d) a project for the development of mutagenicity testing methods for environmental pollutants, involving 9 laboratories, in order to improve the techniques for assessing long-term effects of pollution on human health.

In order to assist the Commission Services and the Advisory Committee in the management of the programme, steering committees for certain closely related projects (e.g. epidemiological surveys) and "contact groups" in various fields have been established to ensure the progressive coordination and complementarity of the work sponsored.

There are also three management committees, one for each of the

COST projects mentioned before, which are run as concerted actions. These entail yearly expenditures of 1.3 MUA for the member states to which are added the contributions of third countries which participate.

## 2. THE SECOND ENVIRONMENTAL RESEARCH PROGRAMME (INDIRECT ACTION).

### 2.1. Motivation - Ways of implementation.

#### 2.1.1. Motivation

2.1.1.1. The basic motivation of the second research programme, as of the first, is to provide for the acquisition of the scientific and technical knowledge necessary to the execution of the Programme of Action of the European Communities on the Environment. This programme of action contains 2 main parts: "Reduction of pollution and nuisances" and "Improvement of the Environment". The first part has been emphasized so far, but the second one will probably be given more importance than before during the second phase of the action programme. The research programme should evolve accordingly.

2.1.1.2. Moreover, special emphasis will have to be given to research projects on the environmental impact of energy production in view of the "Resolution on energy and environment" adopted by the Council on 7 November 1974, and of the proposals of the Commission for a R & D Programme in the field of energy (COM(74) 2150).

2.1.1.3. It should also be kept in mind that, because of the very nature of research work \* and of the time lag between the initiation of most research projects in environmental protection and the obtention of results, the programme should include not only projects pertaining to to-day's urgent issues but

---

\* defined here as the acquisition of new knowledge through the application of the scientific method, in contrast with "studies" which review existing information.

also work designed to solve problems which may be reasonably expected to arise in the medium-term future.

It is also necessary to be able to tackle problems that could not be broached in the first programme, due to lack of sufficient means or because they were not put with the same acuteness as now. In this respect, it should be noted, firstly, that the research activities in both fields often consist of individual projects of limited scope but, if considered as a whole, they form a coherent whole that meets the sectorial research needs. Secondly, these needs develop in time and new problems arise continuously that have to be solved without delay.

2.1.1.4. Taking into account the abovementioned considerations, research topics and subtopics proposed for inclusion in the programme have been selected on the basis of research needs for the execution of the Action Programme.

The implementation of this programme has entailed, i.a., the establishment of criteria documents on the relationships of exposure to pollutants and their effects on health and on the environment, as well as the preparation of directives concerned with quality objectives for certain types of environment, or with environmental protection standards of various kinds. These activities have required the Commission Services to assess the state of knowledge on a series of problems, by means of study contracts, consultations of national experts or the organization of scientific meetings. The existence of many gaps in scientific and technical knowledge has thus been revealed or confirmed, which makes it difficult, if not impossible, to prepare effective measures for the protection of the environment and of human health. In many instances, provisional measures only can be recommended, to be revised as knowledge on the fate and effects of pollutants improves. As illustration of this situation one may mention the problems connected with the toxicity of lead at low exposure levels, or with the identification and effects of carcinogens in drinking water.

2.1.1.5. Those gaps in knowledge which are concerned with information needed for the implementation of a sound environmental policy



should be filled by further research. While each member state has its own environmental research programme, the joint execution of projects at Community level presents some definite advantages. It makes it possible, for instance,

- a) to orient research towards the most pressing needs of the Community action programme and to apply directly to it the results obtained;
- b) to concentrate on a particularly difficult problem the joint efforts of a series of highly specialized laboratories located in the various member states, all of which cannot usually be found in a single one of them;
- c) to carry out important projects throughout the territory of the Community in order to obtain results which are statistically significant through the multiplicity of observations; for example epidemiological surveys or field studies to determine relationships between such or such environmental factor and human health or the status of a type of ecosystem need to cover the greatest available range of variation in subjects or biotopes and in types of environment and to be executed according to the same protocol applied everywhere in the same fashion, in order to obtain statistically significant and comparable results;
- d) to facilitate scientific cooperation with third countries actively involved in similar research; in this respect it should be noted that permanent relationships have been established with the USA to cooperate in such matters as epidemiological surveys and in toxicity testing of environmental chemicals; other countries such as Canada, Switzerland, India, Japan and Norway have expressed an interest in being associated to certain research projects;
- e) to increase the productivity of the sum total of research carried out in the member states by eliminating, through a progressive coordination, useless duplications while filling existing gaps in knowledge.

The content of the present programme has been defined taking the above considerations into account. It has been reviewed and accepted by the Advisory Committee on Programme Management for Environmental Research, with the recommendation that research efforts in any given area be of sufficient size to yield significant results.

2.1.2. Ways of implementation

2.1.2.1. The programme is to be implemented in two ways :

- a) common action, i.e. funded partly or wholly on the Community budget;
- b) concerted action, financed essentially from national sources - except for the cost of coordination - but carried out according to a jointly agreed programme and under the supervision of a steering committee (the procedure for the implementation of concerted action is in the process of being defined).

The decision to use one or the other procedure will be determined, on a ad hoc basis, by such considerations as the type of work, its applications, the interest of the various member states in the topic, . etc. As to the COST projects, which all terminate either before or during the second programme, they may be followed up by concerted actions and integrated in the new programme.

It is recognized that the effective management of concerted actions requires both knowledge of national research activities (an inventory of which is under way) and a certain degree of coordination of them. A given concerted action may be complemented, if need be, by a subproject financed on the Community budget.

In either case (common or concerted actions) the association of interested third countries to any project may be considered according to point 7 c) of the Council Resolution of 14 January 1974 on "An initial outline programme of the European Communities in the field of science and technology".

2.1.2.2. Duration

The second programme is proposed for a 5-year period (1976-1980) \* so as to ensure a degree of continuity in research work which often requires several years for completion, while allowing a progressive adaptation to new research needs through one and possibly more reviews during its course.

As in the past, every effort will be exercised to bring about optimum complementarity with the direct action, the

---

\* just as the new research programme in radiobiology - health protection presented under the Euratom treaty.

new programme of which is due to start in 1977. This time lag should greatly facilitate the preparation of the JRC programme ; it will be possible to determine its environmental activities to make them fit, taking account available skills, within the framework of Community research needs established in preparing the present proposal.

2.1.2.3. During the implementation of the programme, the contents of which are described hereafter, it is planned to carry out, when deemed necessary general studies, bearing on a given environmental problem, the results of which would be applied for the orientation of future research in support of the action programme of the Communities.

These studies will be made in close cooperation with other interested Commission Services (in particular the Environment and Consumer Protection Service and the Health Protection Directorate.)

2.1.2.4. In order to organize rationally the execution of the programme, the first months of the period will be devoted to the examination by the Commission Services and the Advisory Committee, of all proposals received within the prescribed time limits for submission and their selection on the basis of the criteria mentioned before (relevance, scientific value, complementarity, etc...).

A similar procedure might be repeated later on, probably during 1978.

It is foreseen that the individual contracts will not exceed 3 years.

## 2.2. Contents of the Second Programme

### 2.2.1. The main research areas

The programme will comprise 4 research areas.

Research area 1 : Research aimed at the establishment of criteria i.e. exposure-effect relationships for pollutants and environmental chemicals, in support of Part II, Title 1, Chapters 1,

3, 4, 5 and 6 of the Action Programme.

This work, consisting mostly of oriented basic research, will be carried out mainly in the form of common actions, except for the possible follow-up of COST projects 61a and 64b.

Research area 2 : R & D on environmental information management, essentially on environmental chemicals (ECDIN project) in support of Part II, Title 1, Chapters 4 and 11 of Action Programme, to be carried out mostly as a common action.

Research area 3 : R & D on the reduction and prevention of pollution and nuisances including through the application of "clean" technologies, in support of Part II, Title 1, Chapter 5, Section 1, and Chapter 7, Section 1, of Action Programme, to be carried out mainly in the form of concerted actions, including the follow-up of COST project 68.

Research area 4 : R & D related to the second main part of the Action Programme "Improvement of the Environment" (Part II, Title II, Chapter 1 : Promotion of the natural environment) to be carried out in the form of common and concerted actions.

In addition, studies of a more general nature will be carried out on an ad-hoc basis to review particular environmental problems, in order to yield results applicable i.a. for the orientation of future research (see 2.1.2.3.).

#### 2.2.2. Detailed contents

Following are the topics and subtopics for each research area included in the programme on the basis of the selection procedure outlined in point 2.1.1.4.

2.2.2. 1. RESEARCH AREA 1

Research aimed at the establishment of criteria (exposure-effect relationships) for pollutants and environmental chemicals

The Action Programme listed the following pollutants in the first category :

lead and lead compounds, organo-halogens and organo-phosphorous compounds, carcinogenic hydrocarbons, noise

for air : sulphur compounds and suspended particles, nitrogen oxides, carbon monoxides, photochemical oxidants, asbestos, vanadium

for water : inorganic micropollutants and their metabolites, (Hg, Cd, Cr, Cu, Ni, Sn, Zn, As, Be, cyanides), phenols, hydrocarbons.

A list of second category pollutants has been defined recently in a resolution of the Council of 24 June 1975. It includes for air : vinyl chloride, fluorine and its compounds, cadmium, pesticides, chlorine, hydrochlorine acid and its compounds; for water : chlorine and its compounds, nitrates and nitrites, pesticides, organic solvents, phthalates, asbestos, ammonia, organo-silicium compounds, cationic, anionic and non-ionic surfactants.

The establishment of criteria documents requires information on a) the identification and measurement of the pollutants under consideration, b) their fate and physico-chemical transformation in the environment, from the sources to the target organisms, c) their metabolism and effects in the targets (man, animals, plants, ecosystems as a whole).

It would be unrealistic and unnecessary to undertake research at the Community level on all these aspects for all

pollutants. Priorities for Community research (which do not always coincide with priorities for the action programme) have to be established on the basis of the most pressing needs for scientific knowledge, by considering on-going national activities, and by concentrating on the type of research that is better carried out at Community, rather than at national level (e.g. epidemiological surveys).

Topics of research which are considered to meet these requirements are presented hereafter. For each pollutant listed, only those aspects (i.e. identification and measurement, fate in the environment and effects) that seem to warrant Community research have been retained. They would constitute the bulk of the effort in criteria research but the programme should be kept flexible enough to accommodate any additional action that might prove necessary to cover a specific need arising from the execution of the Action Programme.

The order in which pollutants are listed below gives no indication of relative priority. Unless otherwise indicated, the following topics will be investigated by means of common actions.

#### 2.2.2. 1.1. Heavy metals

High priority research topic, especially with regard to cadmium, mercury and to possible synergistic effects.

Substantially less importance will be granted to lead than in the first programme.

1. methodology of monitoring metal contamination in the marine environment
2. fate and transformations in the environment, with emphasis on physico-chemical state, sediment-water distribution and models, or descriptive parameters, of transport in water
3. experimental research on direct and indirect health effects, with emphasis on metabolism, late and chronic manifestations and synergistic effects.

4. application of screening tests for late and chronic effects to a series of heavy metals, alone and in combination
5. ecological effects in continental and marine environments, including base-line studies and methodological aspects.

2.2.2. 1.2. Organic micropollutants

1. detection and measurement in air (including automobile exhausts, dusts and grits) water, soil, food, animal feed etc.. (COST 64b and follow-up)  
(concerted action)
2. fate of organo-chlorine and organo-fluorine (freons) compounds in the environment
3. experimental research on metabolism and effects in mammalian systems in order to assess risks to human health derived from overall exposure to micropollutants
4. ecological effects in terrestrial, freshwater and marine environments
5. development of screening methodology to assess late and chronic effects (in particular carcinogenicity, mutagenicity, teratogenicity) (see also 2.2.2. 1.4.)

2.2.2. 1.3. Asbestos and other fibrous materials

On the basis of a review now under preparation, research may be undertaken on the following points :

1. improvement of detection in air, water, tissues by physico-chemical and microscopic methods
2. epidemiological surveys on health effects in the general population
3. experimental research on effects with emphasis on interaction with other air pollutants.

2.2.2. 1.4. "New" chemicals

Following one of the main recommendations of the Scientific

Committee of the Paris Symposium (June 1974) a concentrated effort must be devoted to the problem of adequate testing of new chemicals prior to their introduction in the environment, considering their potential toxicity (and that of their metabolites and transformation compounds) to both man and the environment.

Emphasis will be placed on the methodology of screening tests for chronic and late effects on human health and for effects on the biosphere cf. also 2.2.2. 1.2., 2.2.2. 1.5.5., 2.2.2. 1.8.3. to be carried out by means of common and concerted actions.

2.2.2. 1.5. Air "quality"

Pollutants of main concern for further research are sulphur compounds, suspended particulates, nitrogen oxides and photochemical oxidants: nitrogen oxides have been singled out as rating high priority in the Council resolution of 7 November 1974 on energy and environment.

1. application and testing of remote sensing methods developed in the first programme
2. physico-chemistry of air pollutants including formation of photochemical smog under European conditions, sorption by surfaces, etc.. (COST 61a and follow-up), concerted action
3. modelling of air pollution dispersion
4. epidemiological surveys : on the basis of the results from the cross-sectional study on schoolchildren to be terminated in 1975, possible follow-up with cross-sectional or longitudinal surveys of selected groups; other epidemiological surveys may be undertaken especially with regard to nitrogen oxides
5. experimental research on effects of air pollutants in mammalian systems, with emphasis on the overall response to various pollutants
6. field and experimental research on effects on vegetation, especially non-visible damage (growth reduction)



2.2.2. 1.6. Water "quality"

1. improvement of characterization of water quality in relation to the implementation of the Council directive concerning the quality required of surface water intended for the abstraction of drinking water in the member states, adopted on 7 November 1974 (total organic carbon, chemical oxygen demand, total extractible chlorine, cyanides, dissolved and emulsified hydrocarbons, including solvents, cholinesterase inhibiting compounds, taste assessment)
2. epidemiological surveys on relations between water quality and health parameters (e.g. mortality, cardiovascular diseases, etc..) ; protocol to be established on the basis of the conclusions of the EEC Symposium on water hardness and public health scheduled for May 1975
3. experimental research on health effects and water characteristics, especially with regard to re-cycled water and to water abstracted through natural filtering media ("Uferfiltration")
4. microbiological pollution : quantitative methods for the detection of viruses in water ; fate of sewage bacteria, fungi and viruses released in fresh and seawater; ecological consequences of microbiological pollution (cf. also 2.2.2. 3.1.2.)
5. assessment of risks resulting from newly identified pollutants (cf. 2.2.2. 1.2.1. and 2.2.2. 1.4.)

2.2.2. 1.7. Waste heat (thermal pollution)

Topic of high priority in the Council resolution on energy and environment (7 November 1974)

1. ecological and microclimatic effects of heat releases in the freshwater and marine environments
2. ecological and microclimatic consequences of heat release to atmosphere from cooling towers

concerted action

2.2.2. 1.8. Marine pollution

In view of a) the recommendations of the CREST Oceanology Group, b) the information required for establishing criteria for fish and shellfish breeding c) the presumed role of the Community in the implementation of the Paris Convention on land-based marine pollution and d) the expected developments of COST Project 43 on meteorological and oceanological buoys, the following topics are included :

1. development of methodology for monitoring sea water quality along the coasts and in the estuaries of the Community, including
  - a) modelling of pollutant transport,
  - b) the use of remote sensing techniques and
  - c) the technical development of a system for the surveillance of oil pollution
2. R & D in chemical and biological sensors for pollution monitoring
3. research in situ and under controlled conditions on the effects of pollutants on marine life including base-line studies and the identification and use of bio-indicators (cf. pollutant lists in Oslo, London, Paris and Strasbourg Conventions).

N.B. Some of these subjects have been mentioned above ; see points 2.2.2. 1.1.1., 2.2.2. 1.1.2., 2.2.2. 1.1.5., 2.2.2. 1.2.4., 2.2.2. 1.4., 2.2.2. 1.7.1.

Specific projects under these topics will be selected taking full account of on-going international activities in the field (such as those from ICES, IOC, NATO, etc..)

2.2.2. 1.9. Noise pollution

The setting of criteria for noise requires additional information which could be obtained from the following research :

1. epidemiological surveys on the long-term effects of noise-induced sleep disturbances and other consequences, including socio-psychological effects, in populations near large airports or exposed to transport noise (road and rail traffic)
2. experimental research on the physiological effects of infrasounds and vibrations
3. experimental research on the effects of intermittent or pulsed noise.

2.2.2. 2. RESEARCH AREA 2

R & D on environmental information management

It is proposed that work in this area be concentrated as before on the problems of environmental chemicals, i.e. chemicals of potential significance for health or environmental protection.

The ECDIN project (Environmental Chemicals Data and Information Network) which involves the direct and indirect actions in close cooperation, is now in a pilot phase limited to a restricted number of compounds. This phase should be extended for another 1-2 years before reviewing the project and deciding on further developments. Some of the current work under contract should be continued. New contracts might have to be negotiated for such items as data validation, studying the problems of networking, work on further software requirements, acquiring additional data on the compounds selected for the pilot phase and on the exploration of the potential of structure-activity relationships in predicting adverse effects of organic micropollutants. Special consideration should be given to possible linking ECDIN with IRPTC (International Register of Potentially Toxic Chemicals of UNEP).

2.2.2. 3. RESEARCH AREA 3

R & D on the reduction and prevention of pollutions and nuisances (including clean technologies)

Work in this area will be undertaken mainly in the form of

concerted actions. However some basic and applied R & D may be the object of common actions if it is of direct interest to public authorities.

Special consideration should be given to the various processes for the treatment of water in connection with the Council directive concerning the quality required of surface water intended for the abstraction of drinking water in the member states, adopted on 7 November 1974.

Except for their ecological and health aspects, waste disposal, recycling and recovery of valuable materials are not considered in this programme in view of the recent creation by CREST of a subcommittee on R & D in raw materials which will examine the needs for Community R & D actions in the area of secondary, as well as primary, raw materials. Actions eventually suggested by this subcommittee would be the object of separate proposals.

The following topics are proposed :

2.2.2. 3.1. Water pollution abatement

1. Advanced biological and physico-chemical treatment of waste water and other non-potable waters : technico-economic evaluations and oriented basic research on adsorption, coagulation, sedimentation, flotation, hyperfiltration, ultrafiltration, membrane fouling, etc..

Attention should be given to possible unfavourable effects of treatment (e.g. chlorination) and ways to prevent them. Special problems (fluctuating urban and industrial organic load) should be considered as well.

It should be noted that the problems of organic wastes from intensive livestock breeding are covered in the Agricultural Research Programme under preparation.

2. Treatment and utilisation of sludges from waste water treatment (follow-up of COST Project 68)

Since COST Project 68 ran out in 1974, this topic will be the subject of a separate proposal in 1975, according to the

procedure adopted by the Council on 25 September 1974, CREST has asked the Council to recognize the Community interest in the project, to be implemented as a concerted action with the participation of interested third countries.

3. p.m. Treatment of effluents from specific industrial branches (including in-plant pretreatment) :

to be decided on the basis of eventual Council decisions in the Action Programme (concerted actions)

2.2.2. 3.2. Waste disposal - Environmental implications (cf. COST 68 for sludges)

Health and ecological consequences of waste disposal : soil and water contamination in relation with type of waste, soil properties, plant cover, etc.. ; problems connected with the use of wastes in agriculture (cf. 2.2.2. 3.1.2.).

2.2.2. 4. RESEARCH AREA 4

"Improvement of the Environment"

The part of the Action Programme dealing with this subject (Part II, Title II), includes the following chapters :

- 1.) protection of the natural environment, 2.) environmental problems caused by the depletion of certain natural resources,
- 3.) urban development and improvement of amenities,
- 4.) improvement of the working environment, 5.) creation of a European Foundation for the Improvement of working and living conditions, 6.) promotion of awareness of environment problems and education.

As mentioned earlier, this part very likely will be given more importance during the second phase of the Action Programme. While a number of these topics either would not seem to require a research effort, or pertain to subjects which are covered by existing or planned activities (e.g. working environment, non-renewable natural resources, agriculture) research is needed on some specific topics listed below mostly with regard to chapter 1 on the protection of the natural environment, to be carried out as common and concerted actions.

- 2.2.2. 4.1. Oriented basic research on the structure and function of ecosystems and on biogeochemical cycles (nitrogen, heavy metals) in view of - predicting the effects of environmental disturbances caused by human activities  
- managing semi-natural vegetation (abandoned agricultural land, national parks) for conservation and recreation
- 2.2.2. 4.2. reclamation of derelict land : mine waste tips, worked-over bogs, etc..
- 2.2.2. 4.3. application of remote sensing techniques for the study of environmental disturbances
- 2.2.2. 4.4. ecological consequences of land use planning : impact on the environment of the building of motorways, industrial installations, high-density residential areas, etc.
- 2.2.2. 4.5. ecological consequences of modern agricultural practices (in coordination with the Agricultural Research Programme)  
i.a. - effects on water quality  
- support to original research aimed at the development of specifications for the use of narrow-spectrum chemicals for pest control.

2.3. Management

The procedures evolved during the implementation of the first programme will be applied and further developed for the execution of the second programme following the guidelines presented in point 2.1.2. Thus the Commission services and the Advisory Committee on Programme Management for Environmental Research will

- evaluate the results of the first programme as they become available, in order to provide a basis for framing the details of the new programme
- define the ways and means of carrying out concerted actions in environmental research

- determine the advisability of carrying out research in a given area or sub-area as a common or a concerted action
- determine the distribution of funds for common actions among the four research areas and the general studies
- examine and select proposals for inclusion in the programme among the applications submitted during the prescribed time periods, on the basis of the criteria enumerated in 1.2.
- maintain or establish steering committees and contact groups to provide the necessary coordination between related projects
- monitor the progress of work through visits to contracting laboratories and critical examination of research reports
- be attentive to respond to evolving research needs of the Action Programme for the environment of the Community
- promote the coordination of national and Community research activities in the environmental field
- organise scientific meetings to facilitate the exchange of information and the assessment of results of research
- encourage the exchange of scientists between participating laboratories.

2.4. Ways and means - Budget

The funds requested are to be used

- a) for the financing (mostly on a cost-sharing basis) of contracts.

- b) to cover the costs of managing the common programme and of coordination of national and Community environmental research activities. This comprises expenditures for
- the personnel of the management unit (11 persons of which 6 are professionals)
  - meetings of national experts (Advisory Committee on Programme Management for Environmental Research, steering committees, contact groups, consultants)
  - the exchange of personnel among contractors
  - the organization of scientific meetings
  - the publication of reports.

The upper limit for expenditure commitments for the programme (1976-1980) is set at 18.500 MUA, including

15.402.361 UA	or 83.3 %	for contract funding
<u>3.097.639 UA</u>	or 16.7 %	for management and coordination
18.500.000 UA		

This amount entails expenditures of 3.500 MUA for 1976, estimated by taking into consideration the current level (1975) of funding of research contracts, the addition of new topics to the programme and the cost of coordination and assessment activities.

The distribution of funds for the common action among research and study areas will be decided by the Commission Services and the Advisory Committee for the Management of Environmental Research Programme after examination of all the applications received and taking into account the possibilities of carrying out concerted actions. However, as a broad indication, it may be foreseen that the bulk of Common action funding would go to research areas 1 and 2 (about 80 %, a few % of which for area 2).

It should be noted that the programme will be subject to review in 1978 to be adapted to evolving research requirements.



3.

PROPOSAL FOR A  
COUNCIL DECISION OF

adopting a research programme for the  
European Economic Community in the  
field of environment (indirect action)

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;

WHEREAS Article 2 of the Treaty establishing the European Economic Community assigns to the Community the task 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, and whereas the objectives of the action performed to this end by the Community are set out in Article 3 of the said Treaty;

WHEREAS research in the field of environment may contribute to the attainment of these objectives;

WHEREAS the research forming the subject of this Decision therefore seems necessary in order to attain certain Community objectives within the framework of the common market;

WHEREAS the Treaty establishing the European Economic Community has not provided the necessary powers;

WHEREAS in its declaration of 22 November 1973, the Council of the European Communities has approved the principles and objectives of a Community environmental policy and the general description of the projects to be undertaken at Community level;

WHEREAS the Scientific and Technical Research Committee has given a favourable opinion with regard to the proposal from the Commission;

HAS DECIDED :

Article 1

A programme of research for the European Economic Community in the field of environment shall be adopted in the form set out in the Annex to this Decision for a five-year period from 1 January 1976. The Annex forms an integral part of this Decision.

Article 2

The upper limit for expenditure commitments and for staff necessary for the implementation of this programme shall be 18.50 million units of account and 11 Community servants for the duration of the programme. The unit of account is defined in Article 10 of the Financial Regulation of 25 April 1973 applicable to the budget of the European Communities.

Article 3

The programme will be submitted to review, on the basis of a proposal from the Commission, to be adapted to evolving research requirements. This review will be prepared in 1977 to take effect at the beginning of 1978.

Article 4

The Commission shall ensure that the programme is implemented. It is assisted in this task by the Advisory Committee on the management of environmental research programmes, established by the Council resolution of 10 December 1973. It submits every year a report to the Council about it.

Article 5

The information resulting from the execution of the parts of the programme set out in the Annex shall be disseminated in accordance with Council Regulation (EEC) N° 2350/74 of 17 September 1974, adopting provisions for the dissemination of information relating to research programmes for the European Economic Community.\*

Done at

Date

For the Council

The President

---

\* J.O. N° L 255 of 20 September 1974.

Annex to the proposal for Council decision  
Environmental Research Programme (1976-1980)  
(indirect action)

A total amount of 18,50 million units of account and a staff of 11 Community servants are allocated to this programme objective.

The work will be carried out with the main purpose of acquiring scientific and technical knowledge required for the implementation of the programme of action of the European Communities for the environment. It will include four main research areas

- 1) research aimed at the establishment of criteria, i.e. exposure-effect relationships for pollutants and environmental chemicals,
- 2) R & D on environmental information management, essentially on environmental chemicals (ECDIN project),
- 3) R & D on the reduction and prevention of pollution and nuisances, including the application of "clean technologies",
- 4) R & D related to the protection and improvement of the natural environment.

Certain studies of a general nature with regard to the action programme may also be undertaken.

Research will be carried out by way of contracts.

Environmental research activities of the E.E.C. :  
brief review of the situation to date.

---

On 18 June 1973 the Council of Ministers of the European Communities decided to adopt a first environmental research programme to be carried out in research organizations in the member states (indirect action) as well as in the Joint Research Centre (direct action). This decision was made in parallel and in close relation with the implementation, that same year, of a first programme of action for the environment.

The essential objective of the environmental research programme is to provide a scientific and technical support to the programme of action. The latter has been concerned mostly with actions aimed at reducing pollution and nuisances. More specifically, these should be reduced, through regulations or by measures of other kinds, to levels which present no unacceptable risk for man and the environment, taking into account social and economic conditions. The establishment of environmental quality standards requires firstly an objective evaluation of the risks resulting from pollution as well as an adequate methodology for the qualitative and quantitative determination of pollutants. Wherever available scientific data is insufficient, which is often the case, provisional measures may be taken. These should be reviewed, however, and possibly amended on the basis of new information supplied by research.

The research needs of the environmental policy are fulfilled more efficiently and at lower cost if the specialized research organizations in the Community work in close cooperation. In this way, major projects can be coordinated at Community level, thus avoiding useless duplication while leaving no gaps. Epidemiological-type surveys may be carried out on large populations exposed to a great variety of environmental conditions and highly specialized laboratories throughout the Community may be brought to bear jointly on particularly complex problems.

It is in this context that the Community Research programme has been planned and is carried out. Since the programme has actually been implemented during 1974, and in view of the fact that ecological or biological research projects cannot usually be completed before at least 2 or 3 years, it is too early to expect important accomplishments yet.

However, one may mention a few results obtained so far as well as some projects under way which represent the type of research coordination which should be more developed at Community level (with the possible association of other European countries). These examples are listed hereafter in random order :

- an epidemiological survey is under way on the effects of air pollution on respiratory diseases; it involves more than 20.000 children in the Community and should yield valuable results for the establishment of air quality standards;
- a pilot-project for a data bank on environmental chemicals (ECDIN project) has been started; data are gathered on the production, usage, physico-chemical properties, toxicity, fate in the environment and ecological effects of several thousand synthetic chemicals; the computerization of this data should make it possible to fulfill rapidly and efficiently the information needs of authorities responsible for the management of the environment and of the chemical industry;
- a group of laboratories is working on the development of remote sensing systems for atmospherical pollution by the use of lasers and other optical methods; they will participate in a field campaign in July 1975 to compare the performances of their equipment;
- numerous researches on chronic toxicity of lead at low level have been started; up till now, they have given certain results which have been exploited for the establishment of a draft directive of the Council on the monitoring of the degree of contamination of the population by lead; one project under way should make it possible to determine effectively the importance of lead from automobile exhausts in the total input of lead by populations;

- several German, Belgian, French and Luxemburg institutes are collaborating with detailed studies on river pollution in the area of Lorraine-Luxemburg-Sarre so that they can contribute to the definition of the quality objectives for these waters;
- a project on the characterization of sewage sludges from effluent treatment plants has been completed which should facilitate the development of new techniques for the treatment and utilization of these sludges;
- a critical evaluation of the performance of two plants for the joint incineration of refuse and sewage sludges has been carried out;
- over 1.000 organic micropollutants have been identified in surface waters in view of evaluating the potential toxicity of these waters and to guide the development of treatments for drinking water;
- the long-term toxicity of polluting chemical products is studied by the utilization of a whole series of tests done jointly by a group of laboratories; this approach should facilitate the evaluation of genetic and carcinogenetic risks of these substances.

Finally one may mention that the Commission services have provided the scientific secretariat and the coordination for the three environmental research projects initiated in 1972 in the framework of COST (Scientific and Technical Cooperation). These projects, in which several European non-member countries are involved (Austria, Finland, Greece, Norway, Portugal, Spain, Sweden, Switzerland, Turkey and Yugoslavia) will be continued with some modifications and integrated in the new programme as concerted actions.

# COMMISSION OF THE EUROPEAN COMMUNITIES

COM(75) 353 final/2

Brussels, 9 October 1975

PROPOSAL FOR A MULTIANNUAL  
ENVIRONMENTAL RESEARCH AND DEVELOPMENT PROGRAMME  
OF THE EUROPEAN ECONOMIC COMMUNITY  
(INDIRECT ACTION) 1976-1980

---

(submitted to the Council by the Commission)

COM(75) 353 final/2



Proposal for a pluriannual

Research Programme (1976 - 1980)

Environment

(Indirect Action)

Doc. COM(75) 353 dated 15 July 1975

Financial Statement

FINANCIAL STATEMENT - ENVIRONMENTAL RESEARCH - INDIRECT ACTION

Part One

1. Juridical and administrative information

- 1.0. Statement number :
- 1.1. Date : 1 October 1975
- 1.2. Relevant budget item : Chapter 3.52 of the Statement of revenue and expenditure for 1976 relating to research and investment activities (Annex I to Section III "Commission" of the Budget of the European Communities)
- 1.3. Fiscal years : 1976, 1977, 1978, 1979, 1980/1981.
- 1.4. Legal basis : Proposal submitted to Council on 15 July 1975, based on Article 235 of the Treaty establishing the E.E.C.
- 1.5. Authorizing department  
D.G. XII (Research, Science and Education).

2. Title of action

Pluriannual Environmental Research and Development Programme of the E.E.C. (indirect action) : 1976 - 1980.

3. Description of action/Personnel involved

3.0. Description

Follow-up of a coordinated environmental research programme carried out by means of cost-sharing contracts with research organizations in the member states.

3.1. Personnel involved

- for the management of the programme : 11 Commission staff (6 A, 1 B, 4 C) in Brussels
- for the execution of the research projects : about 125 professionals plus their technical staff, in all member states.

4. Objectives

4.0. General objective

to contribute to the mission assigned to the Community by article 2 of the E.E.C. Treaty to promote a harmonious development of economic activities, a continuous and balanced expansion and an accelerated raising of the standard of living, in particular in providing a scientific and technical support to the action programme for the environment decided by the Council on 22 November 1973.

4.1. Specific objective

carrying out research in the following areas :

- a) research aimed at the establishment of criteria, i.e. exposure-effect relationships for pollutants and environmental chemicals;
- b) R & D on environmental information management in the field of the environment;
- c) R & D on the reduction and prevention of pollution and nuisances;
- d) R & D related to the protection and improvement of the natural environment.

5. Justification

The proposed research is aimed at fulfilling the needs of the action programme for the environment identified by national experts. A coordination of research in this field at Community level is required to optimize its productivity and usefulness. It should be noted that the indirect action and the direct action are complementary.

6. Total expenditures

6.0.	<u>Overall expenditures for the whole programme</u>	34,1 Mua
	6.0.0. Funded on Community budget	18,5 Mua
	6.0.1. Funded by natural administrations	} 15,6 Mua
	6.0.2. Funded by other sectors at national level	
6.1.	<u>Appropriations</u>	

First Programme

	<u>Commitments</u>	<u>Payments</u>
1973	71.888 u.a.	71.888 u.a.
1974	1.959.316	1.893.261
1975	4.268.796	2.879.882
1976		1.454.969
Total	6.300.000 u.a.	6.300.000 u.a.

Second Programme

Previsions

1976	9.800.639	4.236.639
1977	3.532.730	4.650.730
1978	3.686.831	4.930.470
1979	691.050	1.916.050
1980	788.750	1.788.750
1981		977.361
Total	18.500.000 u.a.	18.500.000 u.a.

6.2. Method of evaluation : the appropriations requested are aimed at financing and managing a research programme of about the size (pro annum) of the current one (1974 - 1975). 83% of total appropriations will be used to fund the research contracts (at a rate of about 50% of total cost), the balance (17%) to cover management and coordination costs, including the expenditure for Commission staff assigned to the programme.

7. Financing

By entering appropriations in the 1976 to 1980/1981 budgets,  
or

By means of a supplementary budget if the appropriations foreseen are not entered in these budgets.

8. Control :

Advisory Committee on Programme Management

The Financial control verifies the execution of the budget.

The Contract Service of DG XII controls yearly the expenditures of the contractual partners.

The Programme will be submitted to a review to take effect in 1978.

Part two

N.B. This is not a new action as such but the follow-up of a current research programme started in 1973.

9. Required personal and appropriation

9.0 Staff and costs there of

9.0.0. Number and category : 11 (6 A + 1 B + 4 C) versus 8 (4 A, 1 B, 3 C) as of now

9.0.1. Extra staff : none

9.0.2. Appropriation for personal expenditures

1976	307.745
1977	353.906
1978	406.992
1979	468.041
1980	538.247

2.074.931 u.a.

9.1 Other appropriation for programme management (meetings, travel, equipment and supplies, publications, etc)

1976	132.000
1977	141.000
1978	162.000
1979	173.000
1980	193.000

801.000 u.a.

9.2 Appropriation for research contracts

1976 - 1980

15.624.069 u.a.

18.500.000 u.a.