

COMMISSION OF THE EUROPEAN COMMUNITIES

environment and quality of life

STUDY OF THE MANAGEMENT INFORMATION REQUIREMENTS OF THE COMMUNITIES' ENVIRONMENT PROGRAMME



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FINAL REPORT

Presented to the
Commission of the European Communities
by an
International Teams of Consultants
August 1974

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SUMMARY

A study has been carried out of the information needs of those responsible for the management of the environment within Member States of the European Communities and other European countries.

The study has been undertaken to determine what is required to support the Programme of action of the European Communities on the Environment set out in the Declaration of the Council and of the representatives of the Governments of the Member States in the Council of 22nd November 1973.

This report describes how the study was conducted and presents the results. It is concluded that an Environmental Management Information Network will need to be developed in order to help the Environment Programme. The Network will provide the means of exchanging information so that the goals of the programme can be met as quickly and economically as the difficulty and complexity of the problems allow. It will also assist the Member States and the Commission in meeting their responsibilities to the United Nations Environment Programme and its data and information needs.

A scheme for the Network is presented and it is suggested that this can be applied at a subnational, national and Community level.

Recommendations are made for the steps to be taken to develop the Network. These concern:

1. The setting up of an Environmental Coordinating Unit.
2. A general plan for the development of an Environmental Management Information Network.
3. Supporting studies.

1. INTRODUCTION

- 1.1 In the Declaration of the Council of Ministers of 22nd November 1973 it is stated⁽¹⁾ that a "group of experts representing customer interests in environmental information will be asked to identify more closely the management information requirements necessary to sustain the Communities' Environment Programme".
- 1.2 This group of experts ("Customer Interests Group") first met in Luxemburg on 9th January 1974. As a result of this meeting, the Commission of the European Communities was asked to conduct a feasibility study of a management information system approach to the need for environmental information and data at the Community level. This study was to be carried out by a small team of external consultants coordinated by a Commission representative.
- 1.3 The aims of this study were⁽²⁾:
1. To define the information and data requirements necessary to monitor and manage the environment in order to provide day-to-day support for the environmental programmes of the Community Member States and the U.N. Environment Programme.
 2. To investigate, by interviews at various levels, the needs of those responsible for management of the environment.

(1) Official Journal of the European Communities, Vol. 16, No. C 112, 20 Dec. 1973, p. 37. See Annex I.

(2) Technical Annex to the study contract (ref. XIII/74-1673). See Annex II.

3. To set out the implications of these findings for the design of an environmental management information system.
4. To propose further stages in the development of such a system, such as detailed feasibility studies, pilot operations, design studies.

1.4 The Commission awarded contracts to four consultants with wide experience in information systems and management capabilities to carry out this study. Their names and that of the Commission official with whom they worked closely are given in Annex VII. The consultants carried out a series of interviews in five European countries in February and March 1974 and prepared an interim report⁽³⁾ as a result. This report was discussed on 22nd April with the Customer Interests Group and on 7th May with the Working Group on Information on Environmental Protection of the Scientific and Technical Information and Documentation Committee (CIDST). These discussions allowed the national representatives of all Member States and Commission officials to express their views of their requirements for environmental information and data and how they should be met. The contributions made at these discussions were very valuable and have been taken into account in preparing this Final Report. A draft of this Final Report was discussed on 5th June 1974 in a joint session of the Customer Interests Group and the CIDST Working Group on Information on Environmental Protection and was accepted as can be seen from the Resolution which is reproduced in Section 5.1. The Final Report in its

(3) C.E.C. document no. 1534/XIII/74.

present form is identical with the accepted draft⁽⁴⁾ except for a number of editorial modifications which were introduced by the consultants in agreement with the Commission representative in order to improve the presentation.

- 1.5 It is considered therefore that this report, in spite of the limited time and resources available, presents a balanced view of the requirements for management information to sustain the Communities' Environment Programme.
- 1.6 The consultants gratefully acknowledge the generous contributions of knowledge and experience by many people concerned with various aspects of the environment. Without their assistance this report would not have been possible.

⁽⁴⁾C.E.C. document no. 1979/XIII/74 - REV. 1.

2. INTERVIEWS AND THEIR RESULTS

2.1 People Selected

2.11 The Study programme called for a series of interviews with people concerned with the management of the environment in order to find out the range of their information requirements. The time and resources available were limited so that it was not possible to be comprehensive.

2.12 However a total of 47 interviews have been conducted by the consultants in the United Kingdom, France and the Federal Republic of Germany as well as in Austria and Switzerland. Those selected as interview partners included:

Government Ministers
Members of Parliament
Central government civil servants
Local government officials
Representatives of private and nationalised
industries
Representatives of Industrial associations and
Learned Societies

2.13 Care was taken to select persons from all levels of activity, including the highest, and the persons approached often involved several colleagues so that the views expressed were representative of the organisations rather than merely of the individuals first approached.

2.14 The interviews have been supplemented by the discussions with the national representatives in the two groups mentioned in Section 1.4 so that the views of well over 100 people have been considered. In addi-

tion the consultants have been able to draw upon knowledge from previous interviews and their own experience from work in similar and related fields. Nevertheless, the consultants regret that they were unable to interview representatives in all Member States.

- 2.15 It is considered that a good range of requirements have been examined and that the conclusions drawn are sound and provide an adequate basis for the recommendations made at this stage for further development. Among these recommendations, set out in Section 4, it is stated that for the development of adequate and systematic methods for the exchange of information to continue on a sound basis further studies of the various views and changing needs will be required.

2.2 Preparatory Work

In order to guarantee a common approach between the four consultants and thus to arrive at comparable results in interviewing customers on their needs, an "Outline of an Interview" was prepared. This included:

- a) A graphic representation of the complex inter-relationships of environmental factors (see Annex III) in order to indicate to those who were interviewed the range of subject matter to be covered by an Environmental Management Information Network and to solicit comments regarding need or desirability of so broad a coverage.
- b) A summary of possible features of an Environmental Management Information Network in order to explain the consultants' line of

thinking and to get comments regarding the suitability of such a design.

- c) A list of ten categories of information which might be required and which were chosen for the purpose of this study. Since this list is considered to be of particular importance for all future planning activities, it is reproduced here:

Category I

1. Monitoring data
2. Monitoring methods
3. Monitoring instruments
4. Monitoring institutions
5. Evaluated monitoring results

Category II

1. Environmental problems
2. Environmental events
3. Measures and their consequences
4. Alarm schedules
5. Cause-effect relationships
6. Environmental models

Category III

1. Reduction of pollution and nuisances
 - in the air
 - in fresh water
 - in sea water
2. Pollution control technology
3. Risks to human health and to the environment from pollution

Category IV

1. Handling of wastes
 - industrial
 - consumer

- radioactive

2. Recycling of wastes
3. Disposal of harmful materials

Category V

1. Products (e.g. of the chemical industry)
2. Production processes
3. Production sites
4. Production capacities
5. Use of products
6. Properties of products

Category VI

1. Protection of the natural environment
2. Urban development and encroachment
3. Improvement of the working environment

Category VII

1. Tolerance data, threshold values
2. Statistical data
3. Sociological data
4. Economic data

Category VIII

1. Standards
2. Laws
3. Judicial sentences, findings, and decisions
4. Decrees, regulations, instructions, and directives

Category IX

1. Projects in research and development
2. Institutions involved in research and development

Category X

1. Experts
2. Information and advisory services

- d) A list of activities and subject areas relative to the management of the environment, to assist in identifying and categorising potential users of an environmental management information system:

Legislative work	Research and development
Central government	Information services
Local authorities	Statistical services
Jurisdiction	Associations
Surveillance, monitoring	Other
Industry	

- e) Questions to reveal shortcomings in existing sources of information and to make users demonstrate their actual information needs by describing typical situations from within the last few months in which they would have made use of an environmental management information system.

2.3 Interview Results

- 2.31 Many of the Member Countries and the organisations within them are spending very considerable sums on environmental protection and have considerable experience and some success in dealing with the problems. One international company has listed 200 staff with significant responsibilities for environmental problems. It is not surprising to learn therefore that there are many data and information files, both large and small, which cover many aspects of the environment and to which governments, organisations and large companies subscribe. In addition many of them have or are developing their own considerable management information systems for environmental problems although those are of necessity restricted in some respects.

- 2.32 On the other hand there are numerous other organisations including smaller companies and local government authorities who have very limited systems, if any, but still have responsibilities to, and interests in, the environment.
- 2.33 In addition there is a widely held view that there is much scope for greater cooperation on environmental problems and a need to establish lines of communication between parties dealing with similar or related problems.
- 2.34 It turned out that the categories of information defined in the preparatory stage of the work (see Section 2.2c above) are all required, although of course, in varying combinations depending on the problems at hand (see Annex IV). It appears that there are requirements from a large number of fields of activity for all sorts of information for all conceivable kinds of purposes. This result seems to be of special importance with regard to the construction of an Environmental Management Information Network: in order to be useful, its scope will have to mirror the complexity and involvedness of environmental relationships. Questions cited by those interviewed, which best demonstrate the great range of information requirements, are summarised in Annex V.
- 2.35 There appears to be a particular demand for information about cause-effect relationships of all kinds including environmental models. It is to be expected that by bringing together widely different kinds of information, as an Environmental Management Information Network will have to, important relationships will become apparent which would otherwise remain hidden.

2.36 The general characteristics required for information, which are seldom fully met at the present time, are:

- Information should be available on a timely basis.
- Information should be up-to-date.
- Access should be possible by several methods (e.g. letter, telephone, teleprinter).
- A variety of levels of response should be available according to the differing needs of users.
- Interaction between the user and the supply of information is necessary to allow the user to change his requirements as he gains greater knowledge.
- All information stores should be accessible through a single-institution approach on the user's side, i.e. whatever the user's query may be, he should be fully served by any part of the Network without the need to address himself to a multitude of institutions to cover different aspects of his problem.

2.37 It was a widespread reaction that the development of an information system of some sort on a European scale would be highly desirable to assist in meeting the aspirations of organisations within Member States of the Community. Indeed it became apparent that some Member States are waiting for suitable suggestions before they start their national information systems which they wish to develop in such a way as to facilitate and make full use of the sharing of information and resources in the common goal of maintaining the ecological balance and improving the quality of life.

3. CONCLUSIONS

3.1 Information Systems and Networks

- 3.11 One of the aims of the study stated in Annex II was to set out the implications of the findings for the design of an environmental management information system. The dictionary definition of a system as a "complex unity formed of many often diverse parts subject to a common plan or a common purpose" (Webster's Third New International Dictionary) is sufficiently broad to describe the whole range of devices whereby organisations gather information, collate and assess it and disseminate it as required. It includes, at one end of the spectrum, the many informal information systems based on the memories of experienced people in an office or workshop, backed up by simple manual records of greater or less complexity. It includes at the other end of the scale the highly sophisticated methods, completely dependent on modern computer technology, whereby, for example, banks and airlines carry out parts of their functions.
- 3.12 However it became apparent during the study that there was some danger in the continued use of the phrase: management information system. The term "system" could be, and indeed was misinterpreted to imply a given management structure. This is clearly inappropriate in the context of the provision of environmental information on the European scale since, although there is a stated common goal for the Member States, the various organisations, governmental and otherwise, have different management structures.
- 3.13 There is nevertheless a great need for the exchange of information, assessed as appropriate for different levels of management of the environment on the European scale. Accordingly it has been decided to refer

to an Environmental Management Information Network as a mechanism for information exchange. In this context a network is to provide channels for information to flow freely without the connotation of direction which is implicit in the term management information system.

3.2 General Specifications

The results of the interviews and previous experience indicate a number of general specifications for the design of the Network:

- 3.21 The kind of information required with regard to environmental problems will change in the course of time. Therefore the design of the Network should be such that it remains flexible and adaptable.
- 3.22 The Common Market and the shared geography indicate that the Network will have to be European in scope beside being comprehensive with regard to the multitude of facets which constitute the environment.
- 3.23 Nevertheless, one must not attempt to develop a single huge store of data, documents and other kinds of information related to the environment. Rather, as is inherent in the network concept, the emergence of local, national, regional and sectoral (i.e. discipline- or topic-oriented) information files should be stimulated as the need for them becomes apparent. These files could then be shared or arrangements made for their full or partial exchange according to specific needs.
- 3.24 To this end, the Network should have a central node ("Central Function", see Section 3.32) which assists in identifying these needs, develops guidelines for

meeting them, and which recommends standards, formats and other specifications in order to simplify the process of information exchange. This Central Function should have the tasks of stimulating the compatibility and harmonization of environmental information data handling procedures amongst participating institutions thus facilitating a unified and coordinated environmental information policy within the Community.

- 3.25 Further, the Central Function might provide expertise in the form of training facilities, analytical capability, and 'fire fighters' for cases of crisis and emergencies, and could add to the capability at the Community level for the analysis of environmental problems as a basis for decision making with regard to environmental matters.
- 3.26 Although the Central Function's own data bases should be kept as small as possible, there will be files, such as indexes, directories of services, projects, or experts, multilingual thesauri, etc., which will have to be developed and maintained for the Network as a whole.
- 3.27 Since environmental problems are not confined to the boundaries of Europe and since much important work is being done elsewhere the Network should seek to be compatible with the common information base now being established for the United Nations Environment Programme, notably the International Referral System for Sources of Environmental Information, the Global Environmental Monitoring System and the proposed International Registry of Potentially Toxic Chemical Compounds.

3.28 The Network will be the result of an evolutionary process, and its success will be reflected by the usefulness of communication links established with its support. Continuous guidance by its customers will be required for this process to take a direction which is to the utmost benefit of those who use the Network.

3.29 Although computers are likely to play a significant role in the construction and working procedures of the Network, it will at the same time and always be heavily dependent on human beings because of the great variety of problems to be handled.

3.3 Components of the Network

The parts of an Environmental Management Information Network fall into four broad categories:

3.31 National Facilities and Services. Usually these will probably be organised into systems of their own, the structures and administrations of which depend on the circumstances of the countries in which they operate.

3.312 These national systems will have to carry the major work load with regard to the retrieval of environmental information and - together with the independent information services (see Section 3.33) - also with regard to documentation. They will collect part of the data relevant to the environment which originate in or pertain to the area which they serve. They will accept queries from customers residing in their area and supply the information needed. They will also decide about which parts of their files can be made available within the European Network.

3.313 In order to facilitate networking and information exchange, national systems ought to be encouraged to develop, as far as information formats and documentation standards are concerned, along similar lines. They should consist of a central facility or focal point which will coordinate the various data banks and subsystems, attempting to ensure that these are compatible in structure from one national system to another.

3.32 Central Facilities and Services. If an Environmental Management Information Network on a European basis is to become reality, a Central Function must be set up. Its tasks have already been described in Sections 3.24 - 3.26. In addition it should sponsor research, e.g. for establishing links between incoherent subsystems or data banks, and it should help in detecting information gaps and in stimulating operations which are aimed at closing them. One of its most prominent tasks is to stimulate and support the establishment of national, regional, local or sectoral (topic oriented) focal points, which are to become nodes of the Network. Therefore it should maintain an "information system about information systems" to be used as an instrument for referring enquiries to those services which are likely to best match the profile of interests of the requestor. The Central Function, too, should emerge as a result of an evolutionary process, the course of which will be determined by interactions between itself and the national systems, by the needs for central services within the Network, and by the Network's interplay with independent services.

- 3.33 Independent Facilities and Services. There are numerous information services covering various aspects of the environment which have been initiated and are operated mainly as private enterprises. These services vary greatly in size, coverage, standards and conditions of access. Nevertheless they constitute efforts, which need not be repeated, when developing an Environmental Management Information Network, but rather should be incorporated, used and, when necessary, improved to the fullest possible extent. Certainly, another element of heterogeneity will be introduced into the Network by following this recommendation, but it is estimated that the effort of establishing links between these services and the rest of the Network will be less by several orders of magnitude than it would cost to collect the same information again.
- 3.34 Problem and Information Analysis Functions. Important among the general specifications for the Network are those that call for the ability to respond at various levels to enquiries and for making the system easy to use and allowing for problem definition to progress during the process of enquiry. Given the complexity of the subject matter and the present state of knowledge this function will have to be provided by people with the necessary expertise in both, environmental relationships and the information available in the Network.
- 3.341 Problem analysis capabilities would be required as an interface between the customer and the Network. They will have to analyse customers' queries in order to identify, in collaboration with the customers, the various environmental aspects which are inherent

in a given problem and which will require attention in order to supply all relevant pieces of information.

3.342 Information analysis capabilities would provide assistance in the following ways:

- a) The information delivered to the customer may require interpretation in various aspects. One would be in preparation of a summary listing the consequences of a decision to be taken as these are borne out by the information retrieved. Another might be to draw the customer's attention to aspects relevant to his problem which were not considered by him nor detected in problem analysis.
- b) The information retrieved may be insufficient in the sense that little or no information is available with regard to certain aspects of a problem. Here the information analyst would have to identify such gaps and recommend actions to be taken in order to bridge them within the Network.
- c) By analysing the information retrieved, new inter-relationships may become apparent. These could form a basis for the construction of environmental models provided they were made objects of research projects. It would be the task of the information analyst to stimulate this kind of work.

3.343 It is recognised that there exist organisations and groups of people in Member States who already act as problem and information analysts. It is not, of course, suggested that additional facilities be set up to duplicate the work of these people. As far as possible problems will be referred to those groups that can handle them most efficaciously. Developing this approach may lead to considerable savings of

effort and avoidance of overlap.

3.344 Problem and information analysis groups will have to work hand in hand if not be identical with regard to personnel. Since they constitute an interface between the Network and its customers their services should be available at all major points of access to the Network.

3.4 Organisation of the Network

3.41 The proposed scheme of an Environmental Management Information Network is shown in Annex VI. This indicates the way in which the parts just described would fit together. The scheme is a tentative but necessary basis for further development. It is tentative in that many of its parts, and in particular the links between them, can at this stage only be defined in outline. It is necessary since one needs a framework for future planning activities. It is a major purpose of the subsequent studies suggested in Section 4.3 to explore the feasibility of this diagram, to fill in the required details and organisational principles and to determine how they should be physically implemented.

3.42 National systems and independent information services will form the skeleton of the Network. Whereas independent services will have to be used largely as they are made available, there may be greater opportunity to guide the organisation of the national systems. It is suggested (see Section 3.313) that, wherever possible, they should consist of some central unit, which includes the problem and information analysis groups, and a number of subsystems which might advantageously correspond to the information categories listed in Section 2.2. The central units of the na-

tional systems should also form the national focal points of the Network, i.e. the interchange of information within the Network should normally operate through them. They will, as far as they wish, have their own use of the independent information services, but they may also route their access to these services through the Central Function of the Network.

4. RECOMMENDATIONS

4.1 Environmental Coordinating Unit⁺

The development of an Environmental Management Information Network to sustain the Communities' Environment Programme is a very considerable undertaking. It involves the efforts of all the Member States, it involves a great variety of skills because of the complexity of the subject and its all-embracing nature. A great deal has to be done and in order to encompass this in a time scale that is in accord with the urgency of the Communities' Environment Programme many of the studies suggested below will be required to run in parallel. Indeed, some of these studies are already in progress. The proper coordination of all these efforts is essential. It is recommended as a matter of urgency that for this purpose an Environmental Coordinating Unit should be created.

4.11 The tasks of this Unit should be as follows:

- a) To ensure that the development of the Environmental Management Information Network is carried out in accordance with the E.C. Environment Programme and the needs of those responsible for the management of the environment.
- b) To act as a mechanism for harmonising all activities within the Commission which have a direct bearing on the development of the Network.

⁺) At its meeting on 17th to 19th July 1974, CIDST recommended that the designation "Harmonisation Unit" should be used (see Section 5.2).

- c) To act, with the help of and through the national representatives, as a mechanism for harmonising the equivalent environmental information and data activities in the Member States.
- d) In conjunction with national representatives and with experts from within the Commission or elsewhere, to make recommendations on actions to be taken towards the establishment of an Environmental Management Information Network.

4.12 This Unit should clearly be close to those who are in charge of the Environment and Information Programmes of the Community. Its work should be directly linked with the planning of the future "EURONET".

4.2 Development of the Network

4.21 An Environmental Management Information Network will have to come about through a step-wise approach, which must be flexible, pragmatic and user-oriented. A general plan and a number of supporting studies are proposed in this Section and the next, which aim at the gradual implementation of the Network and at the simultaneous and continued investigation of the most suitable direction of development. When a stage of development has been successfully completed, the range of problems and/or disciplines may be enlarged one by one.

4.22 It is believed that the method used in this study, that is of discussing needs with the users, will be most important in ensuring successful development. The extent to which users' needs were examined at this stage has been necessarily restricted. It will be all the more essential to involve selected and representative users in all future stages of the deve-

lopment to ensure that the Network is built in conformity with users' needs and therefore will be used.

4.23 Many parts of an Environmental Management Information Network do already exist or are presently being developed. Large and small information services covering many aspects of the environment are available. However, they work in a largely uncoordinated fashion, they show frequent and multiple overlap, and certainly their standards vary greatly. It is not the intention of the Environmental Management Information Network to replace these services or to compete with them, but rather to supplement them and to avoid duplications of effort. Indeed, it is suggested that in developing the components of the Network every effort should be made to build from existing facilities or services. Since the design of the Network must be European in nature, it should not matter in which of the Member States a given facility operates, as long as its services are available to everybody.

4.24 A general plan for the development of the Network could be as set out below:

- a) Select specific environmental problems from the E.C. Environment Action Programme.
- b) Identify user groups interested in the problems in the Commission and at all levels in the Member States.
- c) Select a range of user groups representing all levels and countries for participation in the study.
- d) Sense users' information needs (short, medium and long term) with regard to the problems (problem analysis).
- e) Investigate the availability of the required information on these problems in the Member States

and elsewhere.

- f) Investigate and apply methods for pulling this information together.
- g) Identify gaps or underdeveloped information areas (information analysis).
- h) Stimulate developments to fill these gaps.
- i) Determine the structure and implementation of the Network in order to supply the information to the users.
- j) Analyse the response of the users in order to improve the capability of the Network.

4.25 These steps form a logical sequence which may have to be repeated several times in order to perfect the Network. Some of the steps can be carried out quite quickly and others will give rise to or require the completion of lengthy studies.

4.26 Some of the questions which will need attention and which will arise from the steps set out above are the following:

1. What to do with monitoring data, pollutant information, environmental statistics and records on emissions? Can a standard format be developed for their registration and storage? What can one expect from these data? On which level can the information contained in these data be shared?
2. What are the most appropriate features of the proposed problem and information analysis functions?
3. Which are the kinds of sociological and economic data required in the Environmental Management Information Network? Where are these data available?

4.27 The skills required to carry out this development will be many and varied. They will include those of the information scientist, the documentalist, and the skill of understanding the interaction of computer and man in a complex situation. There will clearly also be required the skills and knowledge appropriate to the particular environmental problems.

4.3 Supporting Studies

4.31 There are a number of studies which are logically required if the steps set out above are to be carried through. Some of these studies have already been started and because of the urgency should continue to run in parallel. However, it is very important that they should be coordinated closely to ensure that overlap is avoided and that the work being carried out is appropriate to the needs of those who manage the environment.

4.32 The main studies required are:

- a) Preparation of inventories of:
 - information sources and services
 - research programmes
 - experts on environmental problems
- b) Development of a pilot phase on information systems for:
 - pollution control technology
 - environmental legislation
 - conference papers
 - toxic chemical products and their properties
(E.C.D.I.N.)
- c) Development of formats and procedures for the handling of monitoring data, environmental statistics, pollutant information and registers of emis-

sions where envisaged in the E.C. Environment Action Programme.

- d) Determination of methods for describing and categorising information services. There is at present no method of comparing and rating such services. However suitable yardsticks are required in order to form a network of such services from the very wide range of disciplines involved in the environment.
- e) Determination of methods of achieving compatibility. In order to link information services, some kind of compatibility is required. In the past this was mostly interpreted as allowing a universal input-output linkage between computers without human intervention. Too many information services are already in existence using widely different hardware and software for this concept to be used for an Environmental Management Information Network. What is needed is a suitable mixture of "pure" compatibility, conversion strategies and methods for detecting and verifying equivalences between the information services participating in the Network.
- f) Investigation of the networking concept. Each environmental problem requires the activation of a particular set of communication links within the Network. It needs to be investigated how this can best be done, and on which commitments those participating in the Network will have to agree. It is typical for environmental problems that frequently the formally organized data banks and information files do not contain all the required information. In such cases communication links must be established into the unknown, i.e. the

Network must look for sources or partners who might provide the information needed.

5. RESOLUTIONS

5.1. Joint Resolution of "Customer Interests Group" and
CIDST Working Group on Information on Environmental
Protection

The representatives of the Customer Interests Group and of the Working Group of the CIDST on "Information on Environmental Protection", having considered in detail the report of the international team of consultants on the "Study of the Management Information Requirements of the European Communities' Environment Programme",

ACCEPT

the broad findings of this report including as it does the comments of experts from the two groups,

RECOMMEND

that the consultants' report should be published by the Commission as soon as possible and

FURTHER RECOMMEND

that the Harmonisation Unit⁺) envisaged in the report should initially and without prejudice to future arrangements consist of representatives of the two expert groups together with the Commission.

Luxembourg, 5th June 1974

⁺) This term has been introduced on the recommendation of CIDST (see Section 5.2). Originally the resolution contained the words "development unit".

5.2 Resolution by the CIDST

The resolution of the two groups of experts meeting in joint session on 3-5 June 1974 was noted by the Committee, which agreed to improve harmonisation of Community programmes in information and documentation for the environment through a group consisting of representatives of the two groups and of the Commission, assisted by such other experts as may be from time to time needed. The Committee also recommended that this group be called a "harmonisation unit" rather than a "development unit".

ANNEX 1

Official Journal of the European Community

Vol. 16 No. 112, 20th Dec. 1973 P. 37

The Commission will put forward proposals before the end of 1974 after consulting two expert groups. The first will be a group of experts representing customer interests who will be asked to identify more closely, the management information requirements necessary to sustain the Communities' Environment Programme. The Scientific and Technical Information and Documentation Committee (STIDC) would be asked to take on the tasks of the second group and identify the possibilities for improving the provision and networking of scientific and technical information relevant to environmental quality and in response to the real needs of users.

The following could be allocated to the most appropriate of the two groups, with necessary support and feasibility studies being carried out by the Commission:

- a study of the non-documentary management information requirements needed to handle and evaluate monitoring and other operational data in direct support of the Environment programme,
- a study of the environmental planning and management information systems presently being established in Member States and the relevance of these activities to the Environment Programme,
- a feasibility study of starting a modest European information (including patents) analysis centre on pollution control technology,
- the updating of the inventory of documentation sources already started by the Commission and its integration

into a European contribution to appropriate UN and other international systems,

- the creation of a constantly kept up-to-date pilot file on conference papers relevant to environmental protection,
- a reassessment of whether the needs of environmentalists are best met by improving access to the different disciplinary or sectoral information services or by merging relevant bibliographic records into a single data base,
- the identification of gaps in the networks which provide the scientific and technical information used in environmental protection,
- the study of the ways and means of achieving a coordinated European environmental information policy so as to harmonise common practices, to avoid duplication of effort and to make the maximum use of modern information-handling skills and user-markets already developed in Member States,
- the placing of all these activities in the wider international setting,
- the production of interim reports as soon as possible with a view to arriving at a realistic draft working timetable by the end of 1973 agreed between the two groups and the relevant services of the Commission.

ANNEX II

Feasibility Study of an Environmental Management
Information System
Technical Annex

Introduction

As a consequence of the Declaration of the Council of Ministers of 22nd November 1973 on the "European Communities Programme of Action concerning the Environment"⁽¹⁾, a group of experts representing customer interests in Environmental Information met in Luxembourg on 9th January 1974 and recognised the necessity and urgency of undertaking, as reported in the Ministers Declaration:

- a study of the non-documentary management information requirements needed to handle and evaluate monitoring and other operational data in direct support of the Environment Programme,
- a study of the environmental planning and management information systems presently being established in Member States and the relevance of these activities to the Environment Programme,

in a general framework of a feasibility study of an Environmental Management Information System as described below.

The group of experts discussed ways and means of achieving this study and urged the Commission to plan in detail and sponsor the work which should be carried out by a small team of external consultants co-ordinated by a Commission representative.

(1) See Official Journal of the European Communities, Volume No. C 112, 20 December 1973, particularly annex part II, chapter 11, page 34 (Dissemination of knowledge).

Scope

The study has to define the information and data requirements necessary to monitor and manage the environment in order to provide day-to-day support for the environmental programmes of Member States, the Community and the U.N. Environmental Programme.

The proposed study represents a unique opportunity to break new ground in attempting to characterise the major environmental requirements within the Community. The study would include particularly investigation, by interview at various levels, of the needs of those responsible for environmental management. It will also include the development of a graphic representation of the interrelationships of the factors outlined in the Programme of Action.

The implications of these needs for the design of an Environmental Management Information System will then be considered together with the following:

- The similarities and differences of existing systems and the identification of whether these characteristics arise from administrative, technical, intellectual, sectorial or systems considerations.
- The possibilities for welding some of these systems together into a genuine Community effort and the extent to which the difficulties in achieving this goal are related to the increasing levels of complexity associated with moving from the simple directory function of the IRS to the handling of monitoring data, pollutant data, socio-economic data, modelling data and other management information.
- The extent to which the structure of systems, and in particular the degree of centralisation chosen, is affected by the subject matter and national or international inter-

ests involved.

- The implications for the Community of concentrating on those specific environmental information and data inputs relevant to the particular goals of the Community as contrasted with the more general aims of the UN Environmental Programme.
- The usefulness of expertise available in environmental management information systems developed in non-Community states, particularly those with novel features such as the capacity to retain original data records so that these can be re-analysed to satisfy new management needs which could not be foreseen at the time of original data collection.
- The identification of possible guidelines, standards and formats for the harmonization of non-bibliographic data exchange within the Community and elsewhere benefiting from the expertise of CIDST and from the experience gained in the development of mechanised bibliographic services.
- The analysis of the structure and function of national and sectoral focal points for environmental management information within the Community.

Results

A report will be produced which will set out:

- 1) The range of requirements that potential users will have for the system together with some specific examples.
- 2) The implications of these findings for the design of an Environmental Management Information System.
- 3) Proposals for the next stages in the development of such a system, such as:
 - a) Detailed feasibility studies
 - b) Pilot operations

c) Design studies.

Work Programme

Major work steps proposed are as follows:

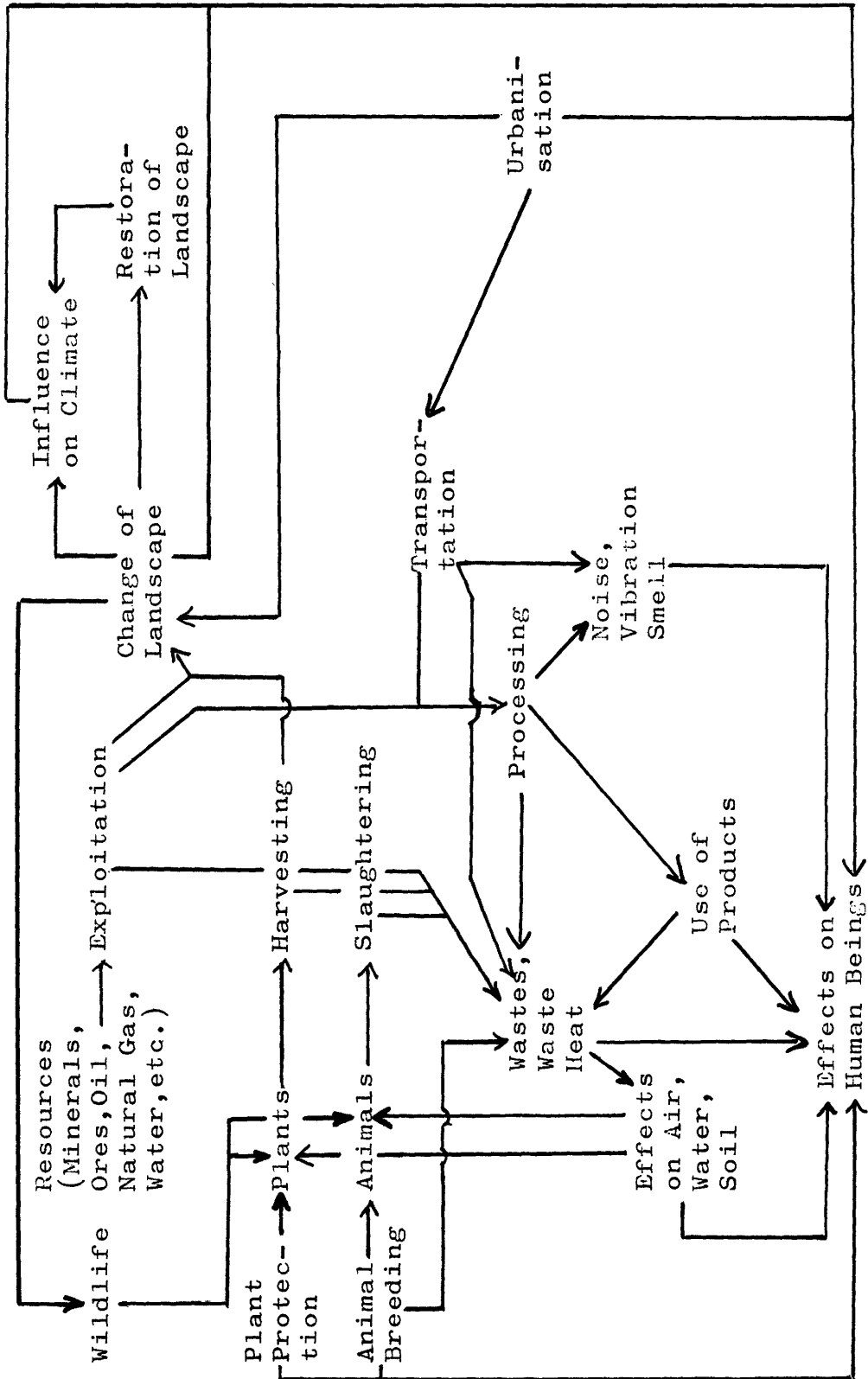
- 1) The identification and description of the relevant constituents of the Communities' Environment Action Programme. The analysis and definition and the interrelationships of the constituents and the formation of the whole into a matrix.

This matrix will be represented graphically and used as a basis for the subsequent work steps.

- 2) The identification and selection of representative groups which require information on environmental matters.
- 3) Development of guidelines for interviewing the representative groups and for the presentation of results
- 4) Interviews with these groups to elicit their requirements.
- 5) The results from the interviews will be used to refine the matrix and to derive recommendations concerning possible system designs.
- 6) Further interviews may be required in the light of the refinements of the matrix.
- 7) Production of an interim report for discussion with the CIDST and Customers Groups.
- 8) Production of the final report.

ANNEX III

Environmental Relationships



ANNEX IV

How are your activities related to the environment?

Which categories of information do you require? (For a full description of all categories see Section 2.2.c)	Legislative work	Central government	Local authorities	Jurisdiction	Surveillance monitoring	Industry	Research and development	Information services	Statistical services	Associations	Other
Monitoring data		x	x		x	x					
Monitoring methods	x	x	x		x	x					
Monitoring instruments		x	x		x	x					
Monitoring institutions		x	x		x	x	x				
Evaluated monitoring results		x	x		x	x	x				
Environmental problems	x	x	x			x	x				
Environmental events	x	x				x					
Measures and their consequences	x	x	x			x					
Alarm schedules		x	x			x					
Cause-effect relationships		x	x			x	x				
Environmental models		x	x			x	x				
Reduction of pollution...	x	x	x			x					
Plants and devices for...		x				x					
Risks to human health...	x	x	x		x	x					
Handling of wastes		x				x					
Recycling of wastes						x					

Which categories of information do you require? (For a full description of all categories see Section 2.2.c)

	Legislative work	Central government	Local authorities	Jurisdiction	Surveillance monitoring	Industry	Research and development	Information services	Statistical services	Associations	Other
Depositories of harmful materials		x			x	x					
Products	x	x	x		x						
Production processes	x	x	x		x						
Production sites	x				x						
Production capacities	x				x						
Use of products	x		x		x						
Properties of products	x	x	x		x						
Protection of the environment	x		x								
Urban development	x		x								
Improvement of working environment	x	x				x					
Tolerance data...	x	x	x		x	x	x				
Statistical data	x	x	x		x	x					
Sociological data	x		x								
Economic data	x	x	x			x					
Standards	x	x	x		x	x	x				
Laws	x		x		x	x					
Judicial sentences...	x	x	x		x	x					
Decrees, regulations...	x	x	x		x	x					
Research projects		x	x			x	x				
Research institutions		x	x			x	x				
Experts	x	x	x		x	x	x				
Information services		x	x				x				

ANNEX V

Typical questions to be answered through an Environmental
Management Information Network

- 1) How do you choose sites for nuclear electric power plants?
- 2) What are the considerations in using a mixed water purification plant for the textile industry?
- 3) What biological test should be used to characterise the toxicity of river water?
- 4) What preventive measures are needed if it is desired to maintain a carcinogenic manufacturing process?
- 5) What methods are available for the differentiation between hydrocarbons of natural and industrial (gasoline) origin?
- 6) What methods are available for the detection of food additives which have hormonal effects and are used in feeding cattle?
- 7) What are the consequences and how does one set about the fiscal taxation of water pollution?
- 8) What future requirements will there be for waste reservoirs?
- 9) What is the biological need for green parks in towns?
- 10) What are the costs and benefits of hidden electric power lines?
- 11) What compensation should be made to people living near airports for the noise?
- 12) What are the amounts of benzene, toluene and xylene found in the atmosphere?
- 13) What relationship exists between speed limits and air

pollution?

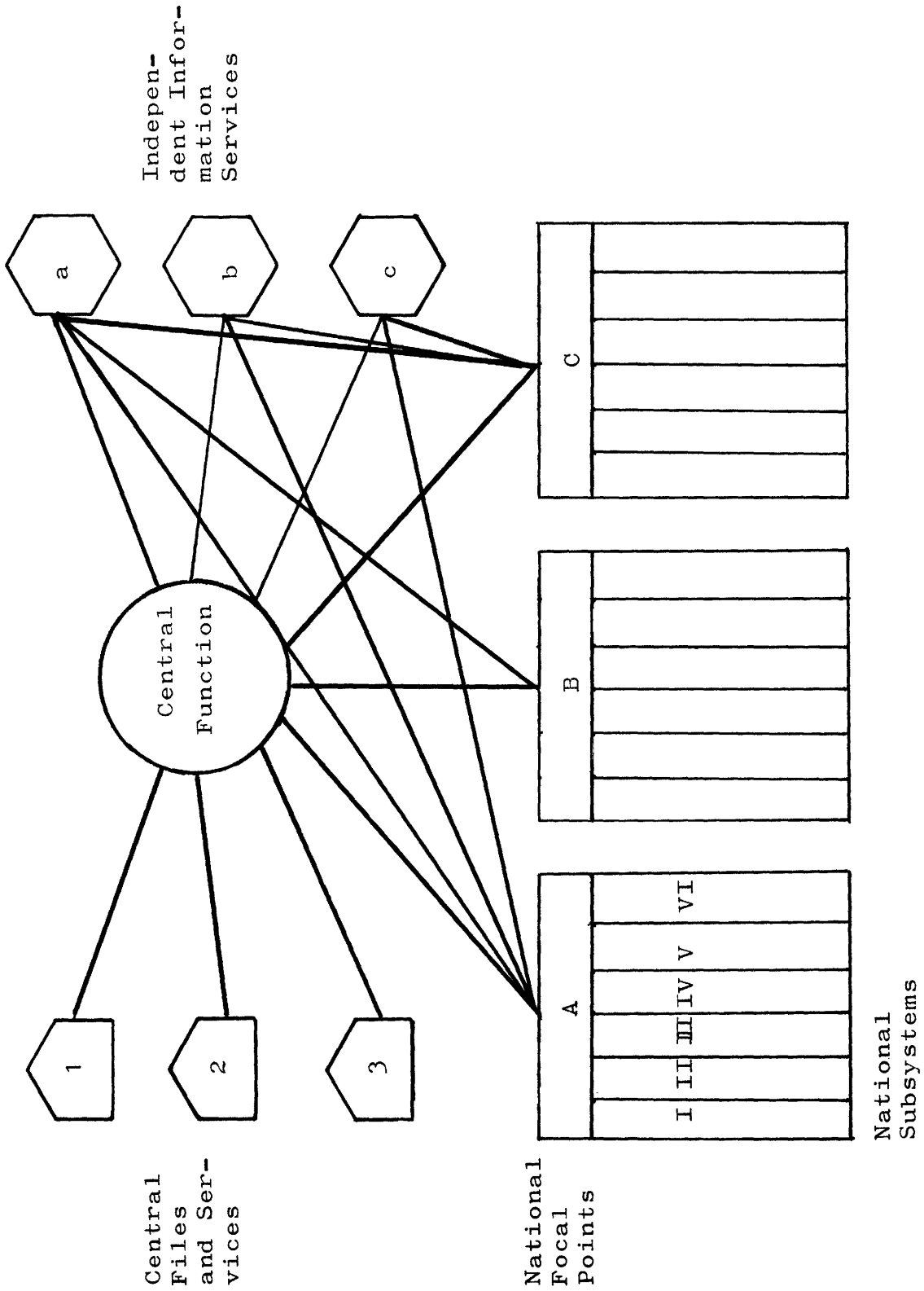
- 14) What information is available on the toxicology of air pollutants?
- 15) What environmental actions have been considered or recently taken by other governments?
- 16) Is it worthwhile investing in antipollution measures for SO_2 if nuclear power plants are to replace thermal power plants?
- 17) What consequences for the execution of an environmental measure follow from a change of responsibility?
- 18) What are the political strategies for the enforcement of measures protecting the environment?
- 19) Who can give information on experiences with environmental monitoring instruments?
- 20) How do we find information which we know exists somewhere?
- 21) How costly is a legislative measure for the protection of the environment and what are the consequences for environmental control and surveillance with regard to people?
- 22) Who is able to give information on the assessment of research and development projects, standards and threshold values? (Support and stimulation of communication, avoidance of undesired parallel work.)
- 23) What is the dependence of corrosion on the chloride and hydrogencarbonate content of drinking water?
- 24) How can one get rid of humic acids in fresh water?
- 25) What is known about germ development in fresh water distribution pipes?
- 26) What consequences for the environment follow from an alteration of the automobile tax?

- 27) What are the interdependences between measures which are technically feasible, those which are politically wise, their costs and social constraints.
- 28) What would the rates of household water supply be in 1980, assuming that the processing costs are increasing with mounting pollution of ground waters?
- 29) What are the likely repercussions of a projected pipeline?
- 30) What is known about the biodegradability of various kinds of plastics?
- 31) Do foods leach noxious compounds out of plastic containers?
- 32) How can "objective" information be gained, i.e. stripped from publicity, advertising and emotional aspects?
- 33) What are the standards for air pollution in other countries and how are they related to effects on man and climatic factors?
- 34) Analytical methods for food constituents - how reliable are they? How expensive?
- 35) Which kinds of plastics should not be used by the food industries?
- 36) Which laws or regulations regarding handling, production and composition of foods exist in other countries?
- 37) What are the consequences of planned or prospective development on the countryside (particularly fauna and flora) and how can these be reduced?
- 38) What are the local and regional effects of toxic waste from sewage?
- 39) How can standards for pollutants be set internationally that take account of different local factors?

- 40) Who has similar problems as the metallurgical industry? What do they do to solve them? At what expense and with what result?
- 41) Which non-biological processes exist for sewage purification? What is their economy and what are their limitations?
- 42) What information is available on the occurrence, distribution and circulation of selected pollutants in various sectors of the marine environment?
- 43) What information is available on dose/response relationships as a basis for setting standards?
- 44) What legislative and control measures are there relating to marine pollution?
- 45) What are suitable methods and plants for burning garbage?
- 46) How should garbage depositories be run and maintained? How does one determine suitable sites?
- 47) What are the effects of adding specific chemicals to drinking water?
- 48) What legislation is proposed or contemplated that might affect decisions on what sort of plant to build and where to found it?

ANNEX VI

Organisational Diagram of an Environmental Management
Information Network



ANNEX VII

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