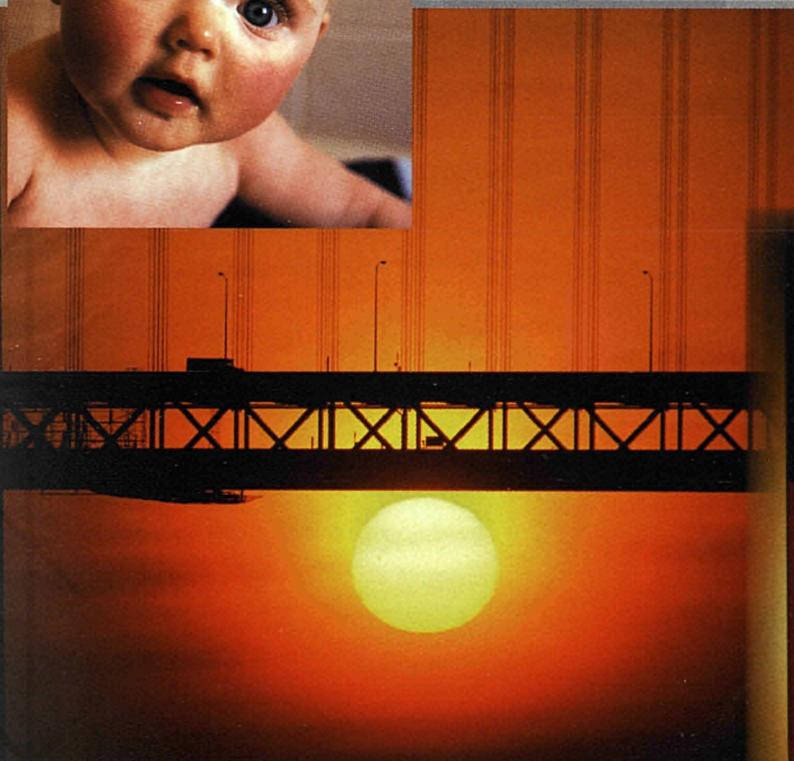




General information



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**Annual monitoring report on the
fourth framework programme
and the Euratom framework
programme**



1998
**Annual monitoring report
on the fourth framework
programme and the Euratom
framework programme**

Directorate-General
Science, Research and Development

Published by the European Commission

Directorate General XII — Science, Research and Development

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Cataloguing data can be found at the end of this publication.

Luxembourg: Office for Official Publications of the European Communities, 1999

ISBN 92-828-7709-4

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Printed in Belgium

PRINTED ON WHITE CHLORINE-FREE PAPER

This publication contains the fourth Annual Monitoring Report on the Fourth RTD Framework Programme and the Euratom Framework Programme, prepared by a panel of high-level independent experts (PART A). The Report presents a brief, strategic assessment of progress during 1998 and a set of recommendations for the continued implementation of the Framework Programmes. The report is also timely and relevant to the current implementation of the Fifth Framework Programme.

PART B presents the Commission Services' response to the recommendations

J. Routti

Director General

Directorate General XII

Science, Research and Development

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PART A

**REPORT OF THE 1998
FRAMEWORK PROGRAMME
MONITORING PANEL**

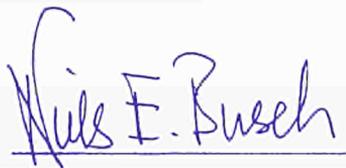
**BY
AN INDEPENDENT PANEL
CHAIRD BY
N. BUSCH**

MAY 1999

1998 FRAMEWORK PROGRAMME MONITORING PANEL

We, the undersigned, the 1998 Framework Programme Panel, are pleased to present to the Commission our Report on the Monitoring of the Framework Programme.

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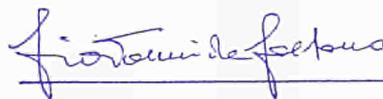
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PROFESSOR JORMA RØUTTI, DIRECTOR GENERAL
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Dear Professor Røutti,

With this letter we submit to you the 1998 Monitoring Report on the Fourth Framework Programme. The report was produced by a group of independent, external experts who were given the task to examine the implementation of FP4 in 1998.

The 1998 Monitoring Report is the last before the start of the Fifth Framework Programme, which adds to its significance both in terms of possible impact on the implementation of FP5 and in terms of utilisation of FP4.

The report focuses on common issues, in particular European Added Value and programme management. In it we comment on major trends such as commitment to economic and social development, identify a number of achievements, and point to issues that Framework Programmes must still resolve.

We hope that the 1998 Monitoring Report - and indeed the the monitoring process itself - will contribute towards even more successful Framework Programmes in the future. We have appreciated the opportunity to work with the Commission.

Sincerely yours,



Niels E. Busch
Chairman

1 Executive Summary

This is the fourth Annual Monitoring Report for the 4th Framework Programme (FP4) and the last before the start of the 5th Framework Programme (FP5). It is required under Decision No 1110/94/EC of the European Parliament and of the Council setting up FP4.

In reviewing the implementation of the Specific Programmes, the Panel finds that all of the individual Programmes' objectives have been covered by their work activities and that all of the corresponding budgets have been engaged across the formal objectives of their relevant Council Decisions¹. Further, in examining the objectives of the 4th Framework Programme, the Panel finds that these objectives have been covered through the actions of the Specific Programmes. In addition, the Panel finds that the individual Programmes have all been executed in a satisfactory manner. Some Programmes have been outstanding in terms of efficiency and innovativeness.

The major achievement of the overall Framework Programme has been the successful delivery of one of the world's largest and most complex research programmes whose results should help to underpin future European economic and social development. It has continued the development of an integrated European research community. During 1998, the Programme has become more proactive in promoting innovation across Europe particularly with respect to intellectual property rights and the commercialisation of its research. It has also contributed to the rational use and development of Europe's research infrastructure, particular large scale facilities as well as making a major input into new European and world-wide standards development. As regards research management, it has developed rapid response research mechanisms, better co-ordination across Specific Programmes and improved research support for EU policy development.

However, the Programme and its successor, FP5, still face a number of challenges. We comment on these challenges, make recommendations on their resolution and ask the 1999 Monitoring Panels to report on their implementation.

RECOMMENDATIONS

European added value is a strong concept but it is weakly defined and poorly applied. **Thus:** An explicit elaboration of perceived European added value must be undertaken at individual Programme, Programme Activity and project level and appropriate indicators developed. The concept must become central to the orientation of research direction and selection of projects.

The Fourth Framework Programme is not Finished. The majority of its projects will not finish for a number of years. These projects must be fully managed, and the results disseminated and exploited in the future. Programme Management under FP5 has a major responsibility for this work. **Thus:** The Programme Managements under FP5 must ensure the exploitation of the FP4 projects. This will include the preparation of an explicit plan, at Programme level, in which the resources to be devoted to such work can be identified along with actions to be taken. This plan should be available to the 1999 Monitoring Panels.

¹ Conf. footnote (3) on page 22

The Management Information Systems are inadequate. They jeopardise good management and make monitoring exercises much less effective. **Thus:** The overall Framework Programme and individual Programmes should identify and commit the resources required for the introduction of a Management Information System which will support the development of modern management.

Good Management Practice. The appropriate introduction and exploitation of the research management techniques developed by some Specific Programmes in FP4 should be broadly disseminated and used in FP5. **Thus:** Research management techniques developed under FP4 should be transferred and used in FP5 Programmes. Towards this end, a report should be prepared which draws together and comments on the applicability of these techniques. The work of the Inter-service Management Groups on FP5 should continue.

Wide Dissemination. The full exploitation of the results of FP4, requires a much wider dissemination of results than is traditionally undertaken. Not only scientists and business men need to be informed, so do policy makers and a much wider public. **Thus:** There is a responsibility on Programmes to combat scientific ignorance and promote their objectives and results to policy makers and a wider public. A plan for such non-technical dissemination of its work should be drawn up and implemented through the use of external expertise and state-of-the-art information technology.

MONITORING

The monitoring process has improved steadily during FP4. In 1998, it has developed better guidelines and a system of co-ordination meetings between Monitoring Panels which has improved the overall quality of the activity. However, a number of additional actions should be undertaken.

Annual Management Reports are needed. There is a need for the information which is provided by the Specific Programmes to their Monitoring Panels to be rationalised, complemented by analysis of the data and presented in a brief report. **Thus:** Self-critical Annual Management Reports should form the basis for the monitoring from 1999 onwards.

Management Targets: Judging progress without targets is difficult. **Thus:** Explicit, operational management targets should to be set on an annual basis. The Annual Management Reports should contain analysis of performance against such targets with reference to and explanation of the appropriate core indicators.

Synergy and Coordination: Expectations are high of synergy and coordination between Programmes and between Programmes and policy development in the different DGs. **Thus:** The Annual Management Reports should provide a clear picture of the extent to which such synergy is achieved.

Rationalising Core Indicators: The core indicators need to be rationalised, slimmed down and better complemented by indicators relevant to each Specific Programme. **Thus:** Core indicators should be limited in number and associated with useful analysis.

2 Introduction

This is the fourth Annual Monitoring Reports for the 4th Framework Programme (FP4) and the last before the start of the 5th Framework Programme (FP5). It reviews the year 1998 and is required under Decision No 1110/94/EC of the European Parliament and of the Council setting up FP4.

2.1 Programme Objectives

The Decision No 1110/94/EC setting up the FP4 laid down a number of overall objectives including strengthening the scientific and technological bases of Community industry and encouraging it to become more competitive at international level as well as promoting research activities necessary for the implementation of Community policies. The objectives also include improving the quality of life and sustainable development as well as supporting economic growth and a high level of employment.

The Decision also established a number of principles for the implementation of the Programme including

- Activities should continue to focus on research of multi-sectoral application
- SMEs should play a substantial role in the implementation of Community RTD activities
- Objectives related to economic and social cohesion should be taken into account
- In conformity with the principle of subsidiarity, the Community should take action only if and so far as the objectives of the proposed action cannot be sufficiently achieved by the Member States
- European added value in the activities and cost-efficiency should be given high priority

2.2 Programme Implementation in 1998

During 1998, Programme Managements have put particular efforts into the following:

- Management of FP4 Programme interfaces within the Commission (between projects, with other Programmes and with other DGs) and externally with Member States and the Global S&T community
- Increasing the awareness, dissemination and exploitation of FP4 projects
- Monitoring and evaluation of projects
- Preparation for FP5

2.3 The 1998 Monitoring Exercise

The 1998 Report of the Framework Programme Monitoring Panel (FPMP) covers the last year of the FP4, 1994-1998. Accordingly this year's panel has been asked to focus on four main issues;

1. Whether the implementation has appropriately covered all Programme objectives, the corresponding budgets fully committed and the Programmes efficiently executed.
2. Whether the major recommendations from the previous monitoring exercise, and where appropriate preceding years, have been implemented in line with the responses of the Commission Services.
3. What are the major trends which can be identified?
4. What can be identified as indications of significant results, impacts and success stories, with a particular focus on European added value?

The FPMP was assisted and supported in its work by the DGXII Programme Evaluation Unit, the Specific Programmes Monitoring Panels and Programme Management from across FP4. The Panel wishes to thank all involved for the effective, efficient and timely fashion in which this support was given.

3 Analysis & Findings

3.1 The Specific Programmes

This section provides the Panel's own views on the individual Specific Programmes. Its views are based on interviews with Directors and Programme Management from each of the 18 Programmes, the written reports of the individual Monitoring Panels and interviews and presentations from members and rapporteurs of the Panels along with supporting documentation.

The Information Technologies (ESPRIT) Programme. ESPRIT is the largest of the Specific Programmes within the Framework Programme. It is a successful and efficient programme, complementing national programmes and contributing effectively to European competitiveness. Very large, pan-European collaborative projects have decreased in number. While the implications of this decrease in average size are uncertain, it is clear that a suitable mix of large and small projects is necessary and should be carefully considered. The Programme has developed a project portfolio that attempts to appropriately balance risk and European added value. In this context, care has to be taken not to overly emphasize the negative rating of risk in proposal evaluations. ESPRIT has effectively developed two-way supplier/user relationships as a research guidance and exploitation tool in technology take-up and demonstration. It has created Programme flexibility through a blend of shared cost actions along with a complex of accompanying measures and has made good progress in the involvement of SMEs. Finally, such short time-to-market technologies, require that proposal-to-contract time continues to receive due attention in order to keep it as short as possible.

The Telematics Applications (TAP) Programme. TAP creates European added value through the development of new telematics systems and services as well as through its applied research, standards setting and dissemination activities. It is a proactive Programme in close contact with users in developing direct applications. Users encompass not only industry but also public administration including schools, universities, hospitals and libraries where the adoption of new technologies presents different but equally important issues. The links with users should catalyse future investment in the technology. Particularly innovative is the involvement of current and potential stakeholders in the guidance and reorientation of projects through an annual review process (a large number of projects were reconfigured at the end of the third year). However,

higher involvement and better integration of the social sciences would be beneficial and welcomed by the Programme. Dissemination of the results of the Programme needs to be strengthened. So does work on the development of criteria and indicators of success.

The Advanced Communications Technologies and Services (ACTS) Programme. ACTS has increased European influence in the establishment of world-wide communications standards. It provides the framework for essential cross-sectoral collaboration to support the convergence of telecom/datacom/broadcasting technologies. This role requires further development of innovative management techniques. International and inter-Programme co-operation has developed well. Overall, ACTS is a well run, efficient, focused Programme with an excellent consultation mechanism for preparing annual work plans, well focused calls for tenders which diminish over subscription and shorten proposal-to-contract delay. It has an efficient technical audit system for reorienting projects. However, there is a need for a fast-track, quick response mechanism, developing small and short-term contracts to improve Programme flexibility - important in the context of fast moving technologies. The further integration of socio-economic analysis will also be important in developing the Programme as will be more internal accompanying measures to support the cohesion of the Programme.

The Industrial and Materials Technologies (IMT) Programme. IMT contributes to European research through a widely applicable range of industrial design, materials and process technologies which support much European competitiveness. The involvement of SMEs through the Co-operative Research Action for Technology (CRAFT), an action in common with other Programmes, continues to be effective and increasingly used. Joint calls with other Programmes are well developed and helpful with clustering of projects. Programme management is efficient and steadily developing. Delay between proposal and contract signing has been reduced but still has room for further improvement. The development of better awareness of the IMT objectives and requirements, allied to an efficient pre-screening of projects is improving project quality and reducing over subscription. Its main innovation in Programme Management is in the development of project impact analysis. The publication *Impact Predicted, Impact Achieved*, despite certain criticisms, provides a working structure and benchmark for additional development in the area. It is expected that this work will also further improve the quality of projects and the exploitation of results as the Programme requirements become even more explicit and better understood.

The Standards, Measurements and Testing (SMT) Programme. SMT provides European added value by drawing together and supporting research and development of common standards and systems. The Programme management is seen as proficient. However, there is a need to introduce a system for the early re-direction of failing projects and termination of unsuccessful ones. Project auditing by independent experts is suggested. This should facilitate the support of projects with more inherent risk but also with greater potential. There is a need to develop a stronger mechanism for highlighting areas where research is needed. This is particularly true outside sectors which have traditionally strong standards bodies. European trade associations and professional bodies should be involved more consistently in identifying up-coming needs from the industry sectors that are poorly connected to standardisation bodies. Pre-screening might be more widely used within the Programme to reduce over subscription.

The Environment and Climate Programme. The Programme aims to improve our understanding of the basic processes of the climate and of natural systems and thus to assist EU environmental policy in support of sustainable development. Such issues are often not simply European-wide issues but require a World-wide approach. Thus, this Programme has also developed international co-operation with the US and Japan and is INCO's (Programme for Co-operation with Third Countries) largest RTD partner. Programme management is adequate but

hampered, as with many Programmes, by a poor Management Information System. SME participation has stabilised at an acceptable level. Formalised links with DG XI, the main customer for policy supporting research, now work well through regular high-level, inter-DG meetings. Visibility and transparency of the Programme have improved markedly. However, there is a need to tighten up proposal to contract times and associated negotiations. There is also a need to reinforce the focus of research on EU level issues, rather than national or regional issues to ensure high European added value.

The Marine Science and Technology (MAST) Programme. MAST has established a critical mass of European research and led to the co-ordination of expensive research facilities across Europe. It is providing a better understanding, from a European perspective, of related policy issues through its development of mobility activities and networked research. While the Programme is well respected by the scientists involved, industrial involvement remains low. The Management Information System is in need of a serious strategic and operational overhaul.

The Biotechnology (Biotech) Programme. The Biotech Programme provides European added value by creating knowledge in areas particularly suitable for European wide research such as the cell factory, genome analysis, bio-diversity and social acceptability. The Programme has developed as a European meeting house for research, industry and finance; particularly venture capital and start-up companies. Diffusion of results and industry participation are supported through the organisation of Industrial Platforms. Similarly, Programme Management organises meetings between research, industry and venture capital to assist the creation and growth of start up companies. The Programme provides much needed policy support and undertakes activities to improve the public understanding of European biotech research. This work, as well as work on public acceptance and consumer protection, needs to be reinforced. Despite a large workload associated with a highly differentiated sub-Programme structure, it is an efficiently implemented and executed Programme. In project evaluation, its rapid scanning process for technically related patents (QUICK SCAN), operated in conjunction with the European Patents Office, appears to be a valuable tool and might be extended to other Programmes. Overall industrial participation seems to have plateaued, and there is a move to improve the quality of such participation. There is room for increasing effective SME participation through exploratory awards and the better interfacing of high-tech SMEs with academic researchers.

The Biomedical and Health Research (Biomed) Programme. Biomed has major potential European added value through the use of Europe as one large laboratory in work such as epidemiology, disease and risk gradients across European, rare diseases, etc.. It provides critical research mass and encourages strong involvement of health care providers including hospitals. Closer contact between researchers and the venture capital and financial community is strongly recommended as is further development of both patenting activity, the take-up of such patents and increasing industrial involvement in general. Currently, scientific publication is very high but patenting activity low. Overall, Biomed is seen as a well run Programme. Its ability to carry out quick-response research, as for example in the case of BSE, is impressive and perhaps constitutes another model which may be transferred to other Programmes. Impact analysis of projects could be even further strengthened. The Programme's development of a European added value questionnaire is a valuable contribution that could be taken as a general inspiration by other Programmes.

The Agriculture and Fisheries (FAIR) Programme. FAIR supports research of importance to the competitiveness of the European agro-food industry². Co-operative research with SMEs is good. FAIR supports EU policies in areas such as environmental development and protection, sustainability and consumer issues, human nutrition and dietary habits, at the same time as it develops research networks. It is funded through three Directorates General (VI, XII and XIV) in an attempt to provide better co-ordinated intra-Commission information and decision making. This framework should be evaluated at a later stage to better understand how such co-operation takes place and can be diffused to other DGs. An inter-DG financial database is necessary in this respect. While the Programme is recognised as being well managed, a situation arose in which advice given by the external project evaluators at one of the final proposal selections was overruled by Programme Management for policy related reasons. Since peer-review is central to the evaluation procedure and should be put at no risk of being diluted, it is recommended that a single evaluation procedure is introduced that takes into account both scientific merit and policy relevance or - if this is not always possible - that problematic decisions are referred back to the evaluators for comment. Finally, inter-project co-operation and clustering should be developed further.

The Non-Nuclear Energy Programme. This Programme provides European added value through its work on energy strategy, rational use of energy, renewable energy sources and fossil fuels and is a focal point of Europe's contribution to a global energy future. The Programme comprises of JOULE (research activity) managed by DG XII and THERMIE (demonstrations) managed by DG XVII. The expectation was that DGs XII and XVII would coordinate their promotion activities, calls for proposals, and dissemination of results, hence providing better European value for money. This has not happened to a sufficient degree despite repeated recommendations. Work activities are not focused enough and not sufficiently related to each other and to the actual current European energy consumption patterns to ensure optimal impact on the development of European energy policies. However, the Programme has contributed to reductions in energy consumption and cost and to positive environmental performance. The exploratory award system has increased SME participation. General Programme management has also improved. Industrial representation in project evaluation should be enhanced. Coverage in some non-technological areas such as dissemination methodology and socio-economic research should be enhanced and appropriate co-operation with other relevant Programmes such as Transport, IMT and TSER developed.

The Nuclear Fission Safety Programme. Given the continued reliance of Europe on this form of energy, safe plant operation and protection of the population and environment are of European-wide importance. The Programme has been well managed and project quality has improved. There has been a greater use of concerted actions to assess, evaluate and advise on research needs. However, there is concern that recommendations from previous Monitoring Panels have not been implemented. The industrial participation is low and should be improved. Dissemination to the technical community is good, but there is a need to reach a broader public including political decision makers so that the Programme and its objectives become much better understood. To ensure that major future challenges can be met, the retention, retraining and renewal of personnel associated with this Programme must be a high priority. Project clustering activities have been successfully carried out but should be further developed. Co-operation with the Joint Research Centre (JRC) needs to be improved.

² Conf. footnote (3) on page 22

The Controlled Thermonuclear Fusion Programme. The Fusion Programme is focused on the long-term objective of fusion power stations. It integrates all European activities in the field of controlled thermonuclear fusion and is therefore - almost by definition - of high European added value. The Programme has achieved outstanding scientific and technical results in 1998 in terms of fusion relevant knowledge. Industrial spin-offs show promise. The main issues for the Programme are the termination of the multilateral Agreement which provides the legal framework for the European fusion technology activities and the European work on the engineering design of the International Thermonuclear Experimental Reactor (ITER). The new European Fusion Development Agreement (EFDA) is expected to come into force early 1999. The Programme is seen as well managed. It is recommended that the EFDA be implemented as quickly as possible along with decisions regarding the Joint European Torus (JET) facilities beyond 1999 and the ITER work. This will avoid Programme disruption and loss of staff.

The Transport Programme. This Programme helps to break down the insularity in national policies, operations and associated industry. Through projects and their associated networks, it aims at defining a European transport agenda and developing related standards. Particular success is to be seen in projects such as the European Rail Traffic Management System, The Maritime Black Box project, the trans-European Network in roads and rail, Urban Transport, Intermodality (integration of different transport forms creating door-to-door service) studies and work on safety on the roads. However, co-ordination with other Programmes such as TAP and with Member State activities should be intensified, if full European added value is to be achieved. User involvement, prior to Work Programme definition, in projects should be strengthened and a much more demand-driven approach to the setting up of projects is needed - the potential implementers of project findings must be involved in the projects. The Programme is well established with good administration and transparent procedures. Specialist software for project management (PACMAN) is reported as useful and potentially applicable outside this Specific Programme.

The Targeted Socio-economic Research (TSER) Programme. Targeted socio-economic research is of major importance to European setting of research directions, implementation of R&D results, and development of R&D based policies. While the Programme has shown some improvement, it must move to structural integration with potential customers in order to fulfil its potential. That is to say, the Programme should be demand driven. Much closer co-operation with other DGs and with Programmes which could orientate research to policy needs is required. Co-ordination with the JRC is essential. At the moment, there is a need for a strong effort towards dissemination of information about the Programme and projects alike, since integration with potential users has been weak. There has been little effort to find additional European added value by effective project clustering and cross-project policy analysis.

The Training & Mobility of Researchers (TMR) Programme. TMR continues to provide strong European added value particularly in its Network Activities which integrate and accelerate European research. Its Marie Curie fellowships have an excellent reputation and the Programme continues to improve its own reputation as an efficient, well run Programme. However, a number of issues still need attention. While there is increasing effort in project monitoring and assessment of their impact, a still stronger approach is needed. Full development of the Marie Curie activities requires a monitoring system - especially a post-programme career monitoring system. The issue of increasing the industrial involvement still needs a solution - the setting up by TMR of an Industrial Host Fellowship scheme does not absolve the Specific Programmes from seeking industrial participation in training and mobility directly through their own activities. There is also potential for synergy between the individual Programme activities which could be better exploited. Over-subscription, while somewhat reduced, remains a problem.

The Dissemination and Optimisation of Results (Innovation) Programme. The Innovation Programme provides European added value by promoting an innovation responsive environment across Europe and by encouraging rapid diffusion of technologies, particularly to SMEs. Its activities concerning financial and venture capital prospects for innovation, awareness of Intellectual Property Rights, and patent issues across Europe are welcome. Its development of the Community Research and Development Information Service (CORDIS) and of Innovation Relay Centres are seen as very useful. Its work in support of the development of regional innovation systems is held in high regard. It is a well managed Programme, innovative in its own implementation, but more integration across its own activities - and with other Programmes - might provide even higher European added value.

The Co-operation with Third Countries and International Organisations (INCO) Programme. INCO creates European added value through providing an interface between European research and that of the rest of the world. Its work with developing countries is particularly noteworthy. The management is quite effective, particularly considering the plethora of highly disparate activities which constitute the Programme. Sharper focus on a more limited number of countries and domains - but staying with a bottom-up approach - might be helpful. Co-operation with other DGs in actions outside the EU has improved. However, over-subscription remains a problem and Programme transparency could be improved. Industry participation is weak and SMEs are essentially absent from the Programme.

The Joint Research Centre. The monitoring of the JRC does not fall within the remit of this Panel but is carried out independently by its own Board of Governors. In 1998, the JRC underwent a major reorganisation of management, tasks and customer orientation. It participated actively and helpfully in the FPMP review meetings both in making presentations to the Panel and discussing monitoring issues: the JRC was represented at both Board of Governors and Programme Management level. Given the resources of the JRC, and its commitment to the development of Community institutions and policies, it is expected that further co-operation and synergy will develop between the JRC and other Commission Programmes and services including the Programme Evaluation Unit of DG XII.

3.2 Common Issues

During the Monitoring Panel's review of the management of the Specific Programmes a number of common operational issues - at a European and a Management level - emerged which require comment.

3.2.1 The European Dimension

European Added Value. After many years of work, it is recognised that European added value is a difficult concept to formulate in useful generic terms, particularly at the overall Framework Programme level. The concept is difficult to put into practice in a top-down fashion - more realistic and more useful is a bottom-up approach. This requires that an explicit, multi-level structure of European added value with appropriate indicators be developed. That is to say, European added value should be elaborated at the level of the Specific Programme, the Programme Activity and the individual project in a pragmatic fashion with suitable indicators at each level. The defining elements would vary from Programme to Programme - as can be seen in the Programme reviews above - and within Programmes, they would vary from Activity to Activity and from project to project. Those making proposals should be required to express more

explicitly the specific added value which would accrue to Europe from their work.

Such a system is needed, if the Framework Programme is to operate effectively at a European level and co-ordinate with the national research programmes of Member States. Here, strong national research programmes able to work with the EU Framework Programme are essential, if Member States are to draw full value from European level research. And, in turn, European level research can only develop in the context of the Member States with a commitment to research and knowledge generation as a path to economic competitiveness and social development. The issues of European added value must not remain theory but be given effect in the management of Programmes and evaluation of proposals.

Combating Scientific Ignorance: Each Programme must strive for maximum exploitation of its investment. Expectations are that this will be achieved by use of patents, licences, venture capital, journal publications, learned books, technical conferences, and seminars galore. But what of the taxpayer and journalist who see Frankenstein in the Biotech and Biomed Programmes and Hiroshima in Fusion and Fission alike and hear the Silent Spring in Agricultural research? There is, possibly, an equally important responsibility on Programmes for their objectives and their work to become more widely understood in Europe through dissemination to a wider, voting public and more generally to politicians and decision makers who could benefit from such knowledge, as well as those who have an influence over them.

3.2.2 Programme Management

The 4th Framework Programme is not Finished. For all FP4 Programmes, the large majority of projects will finish during FP5. It is of major concern that Programmes Management make the necessary resources available such that the results and the investment made in these projects can be fully disseminated and exploited. It is only over the cycle of the FP5 that the return on investment made under the FP4 can begin to be achieved. An explicit plan and indication of resources to be devoted to this work should be required from each Programme. It is essential that future Monitoring Panels, provided with the appropriate support, oversee and assure the full delivery and dissemination of these projects as they finish over the following years.

Developing Synergy in European Research. Within Framework Programmes, the four major sources of synergy between research Programmes are

1. Between individual Programme projects,
2. Between the horizontal Specific Programmes and the vertical Specific Programmes
3. Between two vertical Specific Programmes, and
4. Between the FP Specific Programmes, the JRC and DGs which might require research to support the development of European policy

Mechanisms have developed at the different levels to promote such synergies, most notably between projects in the same Programme and between Specific Programmes. However, much more needs to be done at all levels but particularly between horizontal and vertical Programmes and in making European research a powerful support to all Directorates General in their day-to-day work and policy formation. Such developments would be a major source of European added value.

Setting Annual Management Targets. It is not possible to monitor Programmes effectively unless they indicate clearly, at the outset, what they wish to achieve, their annual targets, and what they would regard as success. While a number of Programmes have made good progress in this regard, there is a not uncommon tendency for some Programmes or Programme Activities still to wait until whatever happens, look for those events which reflect well on the Programme and then, with post-hoc logic, label them success and, hence, prove the Programme successful. This will not do. There must be a concerted move by Programmes to provide, on an annual basis, explicit targets to be achieved, indicators and values to the indicators which would be regarded as success. Such a system will provide important feedback to improving management processes.

Establishing A Management Information System. Nearly all Monitoring Panels indicated the unsatisfactory state of Management Information Systems (MIS) being used by their Programme and the associated difficulties - not only for the monitoring exercise - but also for the Programme Management on a day to day basis. The MIS are described as old, difficult to access, geared only to basic data, and generally incompatible between Programmes and sometimes even within Programmes. It is understood that a major initiative is currently under way to tackle this problem. It is hoped that all possible resources and support will be provided. The MIS problem bedevils every effort at good Programme Management and effective monitoring.

Developing Good Practice. The Programmes have developed a variety of responses to the difficulties of research management which they have encountered over the lifetime of FP4. These innovations have taken place in many areas of management including calls for proposals, proposal evaluation, contract negotiation, and project monitoring. However, the rapid and appropriate spread of these innovative good practices from one Programme to another has not been as rapid as desirable. Mechanisms for the diffusion of useful innovation are required. The experience gained must not be lost in moving to FP5. At the level of the overall Framework Programme, a horizontal Inter-service Working Group on Research Management was set up to prepare for FP5 with representatives of research DGs and interested policy DGs. Such a mechanism should be continued and further developed.

3.3 Trends

The Framework Programme has strengthened both European and Member States' research capabilities. Over the years, it has developed a community of European researchers in industry, public institutions and higher education who share a common commitment to the creation and development of knowledge to support the development of Europe as an economic and social entity. This section reviews the more recent trends within the Framework Programme.

3.3.1 Research and Knowledge are Global

By their nature some Programmes must have a global dimension, if they are to return European added value. As European R&D has gained experience and confidence in its identity, there has been an increasing realisation that, since the EU does not lead the World in all technologies, sourcing knowledge and expertise in North America, Asia and elsewhere can accelerate European research. While there are mechanisms for R&D agreements with China, the US, Canada and other countries, there is an underlying tendency for Programmes to seek mechanisms to gain access themselves to the wider Global R&D effort. This is totally supported - although such efforts must continue to be complementary to Member States bilateral efforts.

3.3.2 A Commitment to Economic and Social Development

During the lifetime of FP4 there has been a shift in emphasis from science and technology push to economic and social problem solving. This should greatly aid the public perception and the acceptability of research. The shift is clearly formulated in FP5 which is given explicit justification in terms of social and economic development and has the character of a contract between science and society.

3.3.3 Balancing Risk, Value and Success

ESPRIT, the largest Specific Programme, pointed out that in its technologies, the centre of European added value is shifting from areas such as bridging geographic and technical frontiers and creating critical mass to issues of technical and commercial risk reduction at a European level. If this is so, then the traditional proposal evaluation procedures, which may appear risk averse, could be a limiting factor on European added value. Projects are currently evaluated on criteria which privilege expected success. This guarantee of success is required for presentation to taxpayers as funding well spent but encourages incremental research in which results are more or less foreseen. While there was no comment about other Programmes moving in this direction, it would be useful for them to be conscious of such possibilities and implications for their proposal evaluation processes.

3.3.4 SME Involvement is Increasing

SMEs' direct participation is increasing. With procedures such as Cooperative Research (CRAFT), Exploratory and Preparatory Awards and Fast Track for proposal evaluation and contracting as well as specialist interfaces, SMEs are better prepared to tender and later participate in full awards. Indeed, some Programmes have been able to move on from issues of getting SMEs to simply participate to reviewing the quality of that participation. However, the technological nature of Programmes will always mean that SME participation will differ from Programme to Programme and Activity to Activity. Even SMEs not participating directly in the Framework Programme are benefiting through better dissemination and diffusion of results.

3.3.5 New Communication Technologies are Applied

Programmes are deriving major increases in management effectiveness and efficiency from Internet based technologies, and CORDIS is playing an important role. The provision of Web based information on Programmes and calls for tender along with downloadable application forms should create savings in management and support staff time. While the use of e-mail has simplified and made communications with projects more efficient, certain legal requirements still have to be dealt with before the flow of paper can be diminished. Projects now regularly establish Web pages as part of their awareness and dissemination activities. As greater bandwidth becomes more widely available, such possibilities will greatly increase. Here new management issues will arise, if Programmes are to capitalize on the potential.

3.4 Achievements

Despite most FP4 projects still not having finished, and recognising that many of the most important project results will require a number of years to manifest themselves, a number of noteworthy achievements are already apparent. The detailed achievements of the Specific Programmes are to be found in their executive summaries in the annexes.

A European Research Community. Perhaps the major achievement of this and previous Framework Programmes has been the creation, across all disciplines, of a European research community. The diffusion of research knowledge and practice and the increased mobility of researchers across Europe is lifting the quality of research, particularly in the less favoured regions.

Better Complementarity in Research. Programmes have undertaken research in areas which are not obvious in national programmes or would be difficult to undertake at a national level in areas such as environment, medicine, public health, migration and compatibility of transport systems. The principle of subsidiarity is becoming increasingly integrated into European research.

Promoting Innovation. Some Programmes have become more proactive in creating the conditions for the development of innovation and intellectual property rights (IPR) based on research. Some have gone further in trying also to establish conditions for financing and commercialisation.

Better Use of Large Facilities. Some areas of research are extremely expensive in terms of capital and operating costs most obviously those associated with Large Scale Facilities. Activities within the Framework Programmes are developing European networks which ensure the more efficient joint use of such facilities and increasing utilisation rates.

Rapid Response Research. The Framework Programme has shown itself capable of rapid responses to specific problems and issues faced by Europe through precise, targeted research which is quickly carried out. The work on BSE has perhaps been the most prominent example.

The European Drive for Standards. Programmes such as ACTS, SMT, Transport and others have acted as the European driver for the rapid development of standards in parallel with their research effort. This drive has taken place not just at the European but also at the global level.

Installing an Evaluation and Monitoring System. FP4 has seen the setting up of an open and effective system of Programme evaluation and monitoring, with associated methodologies, helping to contribute to accountability for public funds.

Negotiation with Applicant Countries. Negotiations have been successful for the participation of the new Applicant Countries into the Fifth Framework Programme.

Finally, it should be noted that FP4 has been one of the World's largest and most complex research programmes. All those involved in Programme Management, Programme Committees and the projects deserve credit for effectively and efficiently creating new research results.

4 Monitoring Practice & The Implementation of Recommendations

This section reviews the experience of the 1998 Framework Monitoring Panel in carrying out its task, and then goes on to look at how the recommendations of the previous year's Monitoring Panels have been implemented.

4.1 Monitoring Practice

Monitoring Practice has improved substantially. As recommended by last year's Monitoring Panel, the exercise has started earlier in the year. It has also been supplemented by two co-ordination meetings with all Monitoring Panels which has improved methodological coherence across the Specific Programmes and with the overall Framework Programme Monitoring Panel. Better direction and common documentation have been given to all Panels. Efforts are also in train to develop better output indicators.

Requests for information were responded to by most Programme Managements in a satisfactory manner but within the limitations imposed by the inadequate Management Information Systems employed. A number of Programmes were specifically praised for the timeliness of the information provided; however a general criticism was voiced that data rather than information was provided.

Core Indicators. There were concerns over the effectiveness of the core indicators. A number of Monitoring Panels indicated explicitly that the core indicators were not used. For these and other Panels which did use them, the general opinion was that they represented crude, difficult-to-use data rather than helpful information and guidance. What is required for effective monitoring is not data but analysis. Core indicators should be more limited in number and associated with useful analysis.

Annual Management Report. Given the severe difficulty of using the core indicators as a base for monitoring, there is a need for reform. An Annual Management Report should be produced as a part of each Specific Programme Management's responsibilities and aimed in particular at the requirements of its Monitoring Panel. The report would be self-critical and would integrate and explain the core indicators and their relationship to the annual Programmes targets. It would include indicators relevant to the whole of the Framework Programme as well as additional indicators appropriate to the Specific Programme.

Annual Programme Targets. An essential prerequisite of the Annual Management Report is to have each Programme set down not just operational objectives but also operational targets and associated indicators on an annual basis. Targets need to be concise and explicit.

4.2 The Implementation of Last Year's Recommendations

Implementation of the Specific Programmes Monitoring Panels' Recommendations

Over the lifetime of FP4 there has been a good implementation of monitoring recommendations. In general, implementation was hampered by a number of factors:

- Some recommendations were understood by the Specific Programmes to lie outside their legal and administrative jurisdiction;

- Given that it was the penultimate year of the FP4, Specific Programmes did not see the operational possibility of implementing the recommendations;
- Specific Programmes indicated that recommendations, currently difficult to fulfil, would be more fully taken up under FP5 and thus little or no action was taken.

Finally, it should be noted that the Commission Services Responses to the 1997 Specific Programme Monitoring Reports vary from a point by point, well argued reply to a quarter page acknowledgement and indication that the recommendations "will be taken into account". The former approach reflects understanding of the monitoring process - the latter not.

Implementation of The Framework Programme Monitoring Panel's Recommendations

The recommendations of the overall Monitoring Panels over the lifetime of the Fourth Framework Programme have been generally implemented and have assisted in Programme Management's development. Last year's Monitoring Panel recommendations are reviewed on a point by point basis :

- **European added value.** Preliminary steps have been taken but a comprehensive concept has not yet been developed;
- **Public awareness** of the benefits of European research has remained a low priority;
- **Budgetary flexibility** may be improved in FP5;
- **Synergies** between vertical and horizontal Programmes have developed to some degree. Synergy with national research programmes remains weak;
- **SMEs' participation** has developed well in terms of their involvement in projects; some success in making the financial environment more friendly has been noted;
- **Clustering of projects, joint and focused calls** for proposals have continued to develop;
- **Core Indicators.** Production of core indicators has continued while the requested analysis has remained weak;
- **Verifiable Annual Targets.** The majority of Programmes have been weak in this area;
- **The Management Information System.** The lack of proper and timely management information continues to be a major difficulty, but it is understood a common system is imminent;
- **The contractual obligation on the provision of ex-post information** after the end of financial support has not been introduced, but is planned for FP5;
- **Time from proposal to contract.** The time lapse from proposal to contract has been reduced in some parts of the Framework Programme, but large differences presently exist;

- **Staffing issue.** Note has been taken of the Commission response to the 1997 FPMP. Overloading of staff continues to be a problem.

5 Conclusions & Recommendations

5.1 Conclusions

In reviewing the implementation of the specific Programmes, the Panel finds that all of the individual Programmes' objectives have been covered by their work activities and that all of the corresponding budgets have been engaged across the formal objectives of their relevant Council Decisions³. Further, in examining the objectives of the 4th Framework Programme, the Panel finds that these objectives have been covered through the actions of the specific Programmes. In addition, the Panel finds that the individual Programmes have all been executed in a satisfactory manner. Some Programmes have been outstanding in terms of efficiency and innovativeness.

Overall, the Programme Management is to be commended for the continuous improvement in management over the life of FP4 and the delivery of one of the world's largest and most complex research programmes. More specifically, the Programme has had a number of achievements including the further development of the European research community, developing better complementarity with national research programmes, the better exploitation of research infrastructure across Europe and the effective promotion of innovation. It has developed rapid response research capabilities and has contributed to the setting of technical standards in Europe and world-wide.

A number of important trends can be detected within the Programme. European researchers are seeking greater research co-operation at a global level. The participation and benefits to SMEs of Framework Programme research is increasing. There is an increasing commitment by researchers to the exploitation of their work.

The Framework Programmes must still resolve a number of issues:

- **European added value** is a strong concept, but it is weakly defined and poorly applied;
- **FP4 is not Finished.** The majority of FP4 projects will not finish until well into FP5. These projects must be properly managed, disseminated and exploited. Programme Managements under FP5 have a major responsibility for this work;
- **Management Information Systems** are inadequate. They jeopardise good management and make monitoring exercises less effective;
- **Good Management Practice.** The appropriate introduction and exploitation of the research management techniques which some Specific Programmes in FP4 have developed should be broadly disseminated and used in FP5;
- **Wide Dissemination.** The full exploitation of the results of FP4, requires a much wider dissemination of results than is traditionally undertaken. Not only scientists and business men need to be informed; so do policy makers and a much wider public;

³ Of the total FP4-budget approximately 99% were committed; of the DG VI contribution to the FAIR Programme about 90% were committed.

- **Co-operation and synergy** between Programmes need further strengthening;
- **Targets.** Programmes still do not set explicit, operational management targets. Judging progress without targets is difficult. Targets need to be formally set on an annual basis.

5.2 Recommendations on Programme Implementation

The 1998 Framework Programme Monitoring Panel makes the following recommendations on the overall Programme to the Commission. The 1999 Framework Programme Monitoring Panel is asked to verify their implementation.

5.2.1 Overall Recommendations

1. An explicit elaboration of perceived **European added value** must be undertaken at the Specific Programme, Programme Activity and project level and appropriate indicators developed. The concept must become central to the orientation of research direction and selection of projects.
2. The Programme Managements under FP5 must ensure the **exploitation of the FP4 projects**. This will include the preparation of an explicit plan, at Programme level, in which the resources to be devoted to such work can be identified along with actions to be taken. This plan should be available to the 1999 Monitoring Panels.
3. The overall Framework Programme and Specific Programmes should identify and commit the resources required for the introduction of a **Management Information System** which will support the development of efficient management.
4. Research programme **management techniques** developed under FP4 should be transferred and used in FP5 Programmes. Towards this end, a report should be prepared which draws together and comments on the applicability of these techniques. The work of the Inter-service Management Groups on FP5 should continue.
5. There is a responsibility on Programmes to **combat scientific ignorance** and promote Programme objectives and results to policy makers and a wider public. A plan for such non-technical dissemination of its work should be drawn up and implemented through the use of external expertise and state-of-the-art information technology.

5.2.2 Recommendations on Monitoring

The 1998 Framework Programme Monitoring Panel makes the following recommendations on Monitoring to the Commission:

1. **Annual Management Reports** are needed. There is a need for the information which is provided by the Specific Programmes to their Monitoring Panels to be rationalised, complemented by analysis of the data and presented in a brief report. The reports should be self-critical and form the basis for the monitoring from 1999 onwards.

2. **Management Targets:** Judging progress without targets is difficult. Explicit, operational management targets should be set on an annual basis. The Annual Management Reports should contain analysis of performance against such targets with reference to and explanation of the appropriate core indicators.
3. **Synergy and Coordination:** Strong synergy and coordination are expected between Programmes and between Programmes and policy development in the different DGs. The Annual Management Reports should provide a clear picture of the extent to which such synergy is achieved.
4. **Rationalising Core Indicators:** The core indicators need to be rationalised, slimmed down and better complemented by indicators relevant to each Specific Programme. Core indicators should be limited in number and associated with useful analysis.

**ANNEX 1 TERMS OF REFERENCE FOR THE 1998
FRAMEWORK PROGRAMME MONITORING PANEL**

Definitions and references regarding tasks

1. Background

The Article 4.1 of the Decision 1110/94/EC on the Fourth Framework Programme of the EC activities in the field of research and technological development and demonstration stipulates that:

"The Commission shall continually and systematically monitor, with appropriate assistance from independent, external experts, the progress of the fourth framework programme as regards the criteria set out in Annex II, which include that of contributing to the economic and social cohesion of the Community and the scientific and technical objectives set out in Annex III. It shall examine in particular whether the objectives, priorities and financial resources are still appropriate to the changing situation. If necessary, it shall make proposals to adapt or supplement the framework programme according to the results of this assessment."

Similarly, Article 4.1 of Decision 94/268/EURATOM concerning the Framework Programme of Community activities in the field of research and training for the European Atomic Energy Community stipulates:

"The Commission shall continually and systematically monitor, with appropriate assistance from independent, external experts, the progress of the framework programme as regards the criteria and objectives set out in Annexes II and III. It shall examine in particular whether the objectives, priorities and financial resources are still appropriate to the changing situation. If necessary, it shall make proposals to adapt or supplement the framework programme according to the results of such monitoring."

2. Issues to be addressed by the contractors (experts)

The Framework Programmes' monitoring exercise should be considered as a quick response mechanism to programme developments and give high-level advice on key issues. The exercise shall produce an overall annual report on progress across the Framework Programmes⁴ which should consider the Framework Programmes as a whole, as an overall planning and financial tool, and not each of its components separately.

The exercise shall mainly be a synthesis of the Specific Programmes' monitoring (including core indicators), summarizing progress and giving emphasis to the main issues which have emerged from the analysis. However, the experts' report shall cover more than the sum of the specific programme monitoring reports⁵. As appropriate, it shall highlight significant differences between programmes and include consideration of Community RTD objectives as described in Article 130f of the Treaty, as well as synergies between programmes and/or activities.

Within the context above the issues to be addressed will include, as appropriate:

⁴ The focus of the report will vary from year to year reflecting the state of implementation of the Specific Programmes.

⁵ The monitoring reports of the Specific Programmes are based on a set of programme indicators following CREST recommendations and they primarily relate to shared-cost programmes under Activity 1 of the Fourth Framework Programme. The implementation of other activities (such as: the dissemination and optimization of results; and thermonuclear fusion) follows different implementation procedures for which complementary indicators are appropriate. Moreover, the JRC participation in Specific Programmes is considered like any other participant, while the JRC direct-action activities are reported on through the "Observations of the Board of Governors on the JRC Annual Report" which will constitute directly an input to the overall Framework Programme's exercise.

- the efficiency and transparency of the programme management (including calls for proposal, information to applicants, assessment and selection process, contract negotiation, and disbursement of funds), and internal Commission co-ordination;
- consistency of the selection of projects with the initial objectives and the work programme, and extent to which selected projects or clusters of projects are fulfilling the wider policy objectives of the EU (in particular in areas of relevance to the programme concerned);
- use of specific measures and support activities (e.g. to support SMEs, improve dissemination, etc.), and participation in the programme of firms and institutions from less favoured regions;
- appropriate follow up of previous evaluation/monitoring recommendations;
- important progress, main output of projects against the original targets set and major achievements in 1998; in this context particular attention should be paid to European added-value; and
- as appropriate, aspects of flexibility to respond to the needs of society in the light of changing circumstances.

An important aspect of the Framework Programmes' monitoring exercise is to advise the Commission Services of the changes that may be needed to the balance of the programmes or to the strategy for implementation in the light of experience and changes in the wider environment. Moreover, cases where the results could have a significant impact should be highlighted.

The experts are invited to recommend additional Framework Programme level performance indicators which could be useful for future monitoring.

3. Performance of the task

The monitoring work will be carried out by a Panel of high-level experts under the leadership of a Chairman (all being external to the Commission Services), known as the 1998 Framework Programme Monitoring Panel. The contractor will work as part of the Panel who will collectively endeavour to provide a Monitoring Report through analysis of factual information. This Report will follow a format provided by the Commission Services. The contractor is expected to work in close liaison with the Commission's Evaluation Unit, DG XII-AP/3, who will provide programme information and Specific Programme monitoring reports.

At their meetings, the Panel members are expected to discuss and compare their individual analysis of the data, interview Programme Managers (as required), agree on their conclusions and recommendations, and contribute to the preparation of the Panel's Report.

The Panel will be supported by an independent external Rapporteur who will be under contract to the Commission to assist with analysis of information provided, summarize the Panel meetings, provide drafts of the Panel's Report, etc. The Rapporteur will at all times work under the instruction of the Chairman.

The Panel will be requested to present its Report to CREST.

ANNEX II **SPECIFIC PROGRAMMES OF THE FOURTH
FRAMEWORK PROGRAMME**

**Budget for the Various Specific Programmes under the
Fourth Framework Programme (millions of ECU)**

Activity 1: Research, technological development and demonstration programmes		
1.	Information Technologies	2 072.5
2.	Telematics Applications	913
3.	Advanced Communications Technologies and Services	671
4.	Industrial and Materials Technologies	1 737
5.	Standards, Measurement and Testing	194.5
6.	Environment and Climate	601
7.	Marine Science and Technology	243
8.	Biotechnology	595.5
9.	Biomedicine and Health	374
10.	Agriculture and Fisheries	689.5
11.	Non-Nuclear Energy	1 055
12.	Nuclear Fission Safety	170.5
13.	Controlled Thermonuclear Fusion	846
14.	Transport	263
15.	Targeted Socio-Economic Research	112
16.	JRC Direct Actions and Support Activities	958.5
Activity 2: Cooperation with Third Countries and International Organizations		575
Activity 3: Dissemination and Optimization of Research Results		352
Activity 4: Stimulation of the Training and Mobility of Researchers		792
TOTAL		13,215

**ANNEX III SUMMARY OF THE 1998 MONITORING REPORTS FOR
EACH SPECIFIC PROGRAMME**

INFORMATION TECHNOLOGIES (ESPRIT)

IT has developed to the point that the Information Society has become a real option and Esprit in FP4 was designed to ensure that Europe derives the maximum economic and social benefits from the use of IT. It sought to build two-way supplier-user relationships by promoting the take-up of existing technology and by promoting research and development aligned with user needs.

Esprit in FP4 had moved on earlier programmes, which needed to support large collaborative actions to set fundamental standards. It reflected the greater maturity of IT than, for example, telecommunications where much of the basic work remains to be done and where Europe is more free to set the pattern for the world.

The Panel commended the Esprit management for this difficult but successful transition, which it saw as a valuable preparation for IST in FP5.

The Panel recognised that the European added value of Esprit was to contribute to a reduction in risks for European industry: **process risks** for large companies considering exploiting new services or technology and **product risks** for small companies seeking to develop new services or technology. The Panel commends the success of the Commission in achieving such a major shift in emphasis from earlier programmes, both by careful selection of projects and by the use of new modalities, such as thematic calls.

There remain several weaknesses in the programme:

- **delay:** the interval between the announcement of a Call and the start of work on selected projects is too long, despite the best efforts of the Commission;
- **complexity:** the downside of the clever use of modalities and structures is that the programme is hard to understand, especially for SMEs;
- **duration:** IT is rapidly evolving but the average duration of a project remains around 24 months and detailed goals should not be set that far in advance
- **SMEs:** Esprit has engaged a small fraction of the SMEs in Europe
- **Success measures:** the Commission often measures success by products and employment and hence, might be encouraged to select low risk projects, rather than those where the impact of EC funds could have the greatest effect on risk reduction.

In view of these, the Panel makes six **recommendations**:

1. there should be several forms of contract, to suit different types of Task. One of these should be an Open Contract in which tasks can be defined as soon as the contractual proposal is approved and subsequently defined as the contract proceeds;
2. selection criteria should be aligned with risk reduction and the nature of the Task;
3. exchanges of staff at the working level should be encouraged;
4. local stimulation of SMEs should be supported;
5. monitoring should be against clear statements of success criteria, defined in terms of risk reduction;
6. project success should be measured several years after completion but additional monitoring should only be introduced after the Commission has explained why it is needed and how it will be used.



TELEMATICS APPLICATIONS

This report presents the results of the 1998 external monitoring exercise of the Telematics Applications Programme. Telematics Applications has aimed to stimulate job creation, improve services' efficiency, and promote the competitiveness of European industry, through the development of new telematics systems and services. The Panel is satisfied that the Programme is well managed as regards quality of implementation. **The Panel is content that major achievements have been accomplished, and that the Programme has achieved its objectives:**

- All projects under FP4 have been contracted. Certain FP4 projects or groups of projects will continue for a few more years parallel with FP5 implementation.
- The Panel is satisfied that implementation in terms of budget allocation is complete, and the management of on-going contracts is functioning well.
- There is evidence that issues featured in the past two monitoring reports have been satisfactorily resolved and programme management has responded positively.

Main achievements:

- There has been an appropriate focus on outputs through dissemination activities, identification of success stories, and emphasis on European Added Value.
- In 1998, many success stories were emerging, several with international scope and global market potentials.
- The Educational Multimedia (**EMM**) and the Integrated Applications for Digital Sites (**IADS**), began in earnest in 1998. These initiatives have been proficient.

Major recommendations:

1. **Output indicators and integration** – To evaluate the results of projects, and to establish parameters than can be used to select future projects, appropriate indicators should be developed by Policy services working with Key Action 1 of the IST Programme. In particular, the Panel recommends Integrated Applications for Digital Sites (upstream IST) and the Educational Multimedia Task Force (Demonstration/Deployment).
2. **Exploitation** – Telematics projects should be given every opportunity in innovation and take-up. Participation in Key Actions 1 and 3 of the IST Programme from industrial organisations is encouraged, to reach a critical mass and boost further dissemination/exploitation of results.
3. **Dissemination** – Successful dissemination undertaken already should extend beyond the UEU to attract third countries to co-operate, and encourage proactivity to marketing in fast growing global markets.
4. **European competitiveness** – To fulfil existing Community policies. Telematics results should provide advanced user benefits and position European systems and services in new emerging markets. Telematics-type projects of the future should have a wider perspective to apply more state-of-the-art technology, securing long-term user benefits, with research and industry in pre-competitive co-operation.



ADVANCED COMMUNICATION TECHNOLOGIES AND SERVICES (ACTS)

The Panel has focused on a number of Key strategic issues in 1998, some of which fall within specific areas of the ACTS Programme, and others which cut across several areas. For each of these highlighted issues, the Panel has reviewed the current status of work, the trends and emerging results and has made a limited number of recommendations. These recommendations will need to be taken up in the launching of the new IST Programme, together with the recommendations of a more general nature on programme management.

The Key issues in this 1998 review are the convergence of Networking (INTERNET), communications and broadcasting; the new perspectives now opening up on photonic technologies; the deployment of the Asynchronous Transfer Mode (ATM) in a variety of communication infrastructures for very high-speed networking; the rapid growth of Mobile communications, based on common standards (GSM and UMTS); the new opportunities in "software" re-configurable radio systems; the coherent deployment of Electronic Commerce; and wide introduction of new working practices, notably Telework. In all of these areas, the ACTS Programme has made major contributions, both to Europe's leadership in technology developments and to coherence and interoperability. Other areas of work are also important, but are not addressed here for reasons of time and brevity: for example, security, reliability and intelligent service creation and management are areas of work that must be strengthened.

The Panel recommends that the Commission should support the convergence of telecom/datacom broadcasting by giving priority to R&D projects with cross-sectoral European collaboration. World class work in photonic networks should be reinforced with cohesive standards activities in order to underpin Europe's position in this critical technology area. In addition, it recommends that concertation between ATM-related RTD and deployment trials should continue in FP5, but with more attention to other evolving high-speed networking topics; to satellite communications; to the convergence of fixed and mobile communications, and to the next phases of software Radio RTD. Initiatives will continue to be necessary to ensure that electronic commerce develops on the basis of open platforms with defined interfaces, and continued support for telework development, drawing on new technology developments, will continue to be of high importance to society.

In terms of programme management, a high level of industry participation will continue to be vital for success in European RTD, but the work must allow co-operation between competitors without distorting competition. Large strategic projects should be given preference and leading industrial participants should be encouraged to associate SMEs in them. A light and efficient concertation mechanism using electronic means should be established and fast-track procedures should provide a quick response and rapid processing of proposals for small and short-term projects; notably feasibility studies by small enterprises, and innovative high-risk projects.

In the IST Programme, an on-going effort must be made to keep an updated vision of future societal and technological trends, with a strategic plan to build the Information Society rooted in the expressions of needs from a bottom-up analysis. Procedures to encourage project reorientation and possibly termination should be strengthened. The Commission should adopt the ACTS methods for evaluating, auditing and monitoring of large and long-term projects.



INDUSTRIAL AND MATERIALS TECHNOLOGIES (IMT)

There is general agreement throughout Europe that Industrial and Materials technologies hold the key to the future prosperity of European industry. From an expanded knowledge base will grow a more successful European manufacturing industry uniquely aware of its social and environmental obligations. In view of the globalisation of trade, services and manufacturing the need to strengthen European cohesion is paramount. To this end the panel considered that the relevance of the programme objectives highlights the objective of increasing European competitiveness as being more important than ever. The globalisation of trade and with it the increase in competition from outside the community, is the driver to reduce product design and development lead-times, to increase added value, whilst maintaining employment and living standards. Design, materials and processes is a vital ingredient in the economic cycle.

The panel found that over the time-scale of the 4th Framework Programme, the Commission had implemented changes which were beneficial in achieving programme objectives. The success of the IMT programme may be accounted for by greater awareness amongst proposers and through efficient pre-screening by the Commission. The evaluation was deemed to be fair transparent and well documented with pre-screening or two stage evaluation particularly appreciated. CRAFT procedures still appear to cause concern for SME's. Since the importance of SME's within the European economy is very significant (more than 65% of both GDP and employment are attributable to SME's) efforts should be concentrated to increase their involvement in RTD projects and related activities. In order to assist in European cohesion, specific measures are required to involve SME's from less developed EU regions, where their economic and social importance is paramount. To this end it is the panel's view, that too many networks of local information centres exist, that they should be rationalised and their quality improved. This will be of great benefit in member states where previously relay centres had limited impact.

Concern continues to be expressed concerning the close of calls to the signing of contracts. The panel commends the Commission on its drastic but still improvable effort to reduce such delays. The panel has made recommendations for reducing these delays in section 4 para. IX. of the report.

The panel would also like to take the opportunity on commending the Commission on the low administrative financial commitment in achieving such success, compared to the budgets allocated to research projects.

The document *Impact Predicted, Impact Delivered* recently published by the Commission is welcomed as an interesting and valuable attempt to assess IMT projects in terms of their achievements and future socio-economic impacts. The panel thought that the report suffers from a lack of co-ordination between the parts dealing with "delivered" and "predicted" impacts and from inconsistencies and errors. The panel recognised this as being an important document for future assessment and spent much time in evaluating ways to realise its potential. (This is covered extensively in sections 3.4 to 4 in the report). The panel wishes to commend the Commission on the introduction of this document and to stress the importance on the continued publication of improved versions of impact assessment.

The panel supports the view that impact analysis is important in establishing European Added Value. Whilst it recognises that some conclusions have to demonstrate to the political decision makers how important IMT is for the future of European companies, it is also recommended that the impact surveys be analysed in order to assist future participants, resulting in better projects, better management of accepted projects and better exploitation of project results. To assist in this endeavour, much needs to be done in the area of the "Core Data". The panel found the information supplied to be confusing in terms of both layout and presentation. As panels are only together for a short period of time, the panel recommends that in future the Commission supply them with an analysis, evaluating the trends indicated by the numerous tables, graphs and numbers.



STANDARDS MEASUREMENTS AND TESTING (SMT)

The aim of the Standards, Measurement and Testing (SMT) Programme is to support Europe's efforts in manufacturing competitiveness, standards for trade and well-being of its people.

At the end of 1998, the SMT Programme had 424 running contracts – 349 shared-cost RTD projects, including thematic networks and CRAFT, 74 accompanying measures, and one concerted action. The total number of partners is 2936. In addition, there are associated partners in the certifications of reference materials and intercomparisons. The participation of SMEs with less than 50 employees is 23%.

248 projects have been finalised during 1998. The total budget for the 4th FWP SMT Programme, 185 MECU, is committed. A total of 1554 proposals yielded 588 SMT contracts in the 4th FP. Open call proposals evaluated in 1998 concerned RTD in support to *trade and the measurement and testing infrastructure*, and the *needs of society*. Including proposals from the 6th dedicated call, CRAFT, and accompanying measures, 119 were selected for funding. SMT staff organised the successful conference **Measurements – a key to competitiveness** (25th anniversary of BCR) and prepared for the 5th FP in 1998.

In addition to the economic benefits registered in some cases, *European added value* is more or less inherent in most SMT projects, e.g. the effective support to European Directives, the contributions to the harmonisation of measurement and testing between EU countries, the sharing of good measurement practice, and building of a European measurement infrastructure. The pooling of efforts yields the critical mass required for success and the creation of formal as well as informal networks continually generate European added value. The concerted action *Euromet-NIST* on the Mutual recognition of calibration certificates is one of the European measurement infrastructure success stories. In fundamental metrology, the project *SETAMP*, concerned with the application of single electron devices for the development of a current standard, may lead to a new definition of the ampere.

In 1998, work has been initiated within the SMT programme, to identify the needs of *metrology in chemistry* and outline a strategy for future work. Much effort will be required in the 5th FP to develop this into a full strategy, in co-operation with Eurachem and Euromet, and internationally with, e.g. BIPM and CITAC.

The Programme management is proficient, with continuous development of the implementation of the various parts. The two-stage CRAFT has developed into a well-functioning procedure. The dedicated calls now have potential for focusing and should be used for clustering of projects for greater impact. The Monitoring Panel recommends stage gating and audits of 'running projects' by independent experts to provide the necessary tools for early re-direction to termination of unsuccessful projects. This should facilitate supporting projects with inherent risk but with great potential. Pre-screening of proposals by SMT staff should be adopted to increase the overall efficiency of the programme by avoiding wasteful over-subscription. Improved administrative mechanisms for early notification of "B" and "C" rated proposals are required. For the creation of a structured system for metrology in chemistry and the selective production of key CRMs, it is recommended that more of a top-down approach is utilised through the dedicated calls. European trade associations and professional bodies should be involved more consistently in identifying up-coming needs from industry sectors that are currently poorly connected to standardisation bodies. There is still a need for activating national focal points, especially in less-favoured regions, to promote the SMT Programme more efficiently. The highly qualified and experienced scientific officers can have an important role in clustering. Publications by the management and publications, workshops and training courses resulting from SMT projects, have made significant contributions to the dissemination of results from 4th FP projects in 1998. A number of accompanying measures initiated in 1998 are expected to have further impact.

With over 400 4th FP projects still running, it is important that a sufficient number of the experienced and highly qualified staff remain attached to the SMT to get the full benefit from these projects.



ENVIRONMENT AND CLIMATE

A Panel of external experts has monitoring the Specific Programme (SP) for Research and Technological Development in the field of Environment and Climate. The programme is part of the fourth EU Framework Programme (FP4) 1994-98. The programme is aimed at four themes: 1. Natural Environment, Environmental Quality and Global Change; 2. Environmental Technologies; 3. Space Techniques service Environmental Monitoring and Research; and 4. Human Dimensions of Environmental Change. The programme is managed by four Units of the Directorate DGXII/D: 1. Environment Technologies; 2. Climatology and Natural Hazards; 3. Space; and 4. Research on Economic and Social Aspects of the Environment. The year to be monitoring is the last year of programme implementation, but most of the results of the contracts signed (shared cost actions, concerted actions) will be only available after 1998.

In 1998, 148 MECU were available. This amount has been allocated to 241 contracts, thus committing the remaining part of the programme's financial budget. There were 167 contracts Shared Cost Actions, 13 for Concerted Actions and 61 for Preparatory, Accompanying and Support Measures. At the end of the year, practically all short-listed proposals had lead to the signature of contracts. One main call, the "Water Call", took place and had its deadline in February.

As trends could be noted, the participation of SMEs in the programme has stabilised on high level. Linkage with other DGs as clients for research and study results is intensifying continuously, even though the lack of personnel is limiting wider possibilities. International overseas co-operation with USA and Japan takes definitive shape by defining joint projects. The participation of "Objectives 1 regions" has more than doubled.

The programme has gained considerably more visibility and transparency during 1998. The public relations and dissemination of results activities have been better co-ordinated and widened, following a 1997 monitoring recommendation. A new CORDIS contract results database and several homepages on the programme and its highlights have been made public via Internet and are regularly updated.

The panel is of the opinion that the main objectives of the programme have been well covered in consolidating the content by completion of the inventory of projects. The programme management is adequate to the needs, but is suffering under understaffing in periods of high workload and lack of a modern intern information system supporting work efficiency. The available scientific results which are still few show some highlights in the four themes of the programme.

The Panel gives recommendations concerning programme implementation and management of the on-going contracts and its expected results by proposing the establishment of a contract inventory enabling the reliable continuation of contract management under a changed organisation structure. The Quantitative Core and Qualitative Programme Data should be part of a modern internal data and information system as a useful standard tool for the daily work and not only for the monitoring exercise. A monitoring of the Central Services should be envisaged assessing the different steps of the time consuming administrative contract process and their delays. Also excessive delays during contract negotiations and consortia formation on the proposer's side should be avoided. The role of the successor programme committee to COPEC should be though over. More rapid information transfer to the committee members by electronic means would be helpful for their work. An analysis of the obvious imbalance of programme participation by countries is recommended.

The Panel recommends a two-year period of monitoring with the goal to cover more calls and longer contract terms as well as a relief in workload for the EC officers.



MARINE SCIENCES AND TECHNOLOGY (MAST)

The Panel found that the budgets for the MAST Programme are close to being expended and it felt that the programme had been efficiently executed. The Panel members had the opportunity to talk to a range of marine scientists from different Member States and they were told clearly that the MAST programme had made a substantial impact on the level of co-ordination and co-operation by marine scientists across Europe. The programme is well known and well respected, as are the Commission staff whose responsibility it is to run the activities. The Panel felt that major achievements had occurred in:

- the increased mobility of marine scientists in Europe;
- the establishment of critical mass in research groups;
- the creation of common databases open to the research community;
- the improved co-ordination of expensive research facilities.

The Panel was aware that substantial planning was underway all through 1998 on Framework Programme 5 which took up time and intellectual resources which were inevitably denied to the MAST programme. Two recommendations are put forward for implementation issues:

- the Commission should put in place a modern, flexible management information system which would support the day-to-day requirements of the programme managers as well as satisfying the needs of evaluation/monitoring exercises;
- the Commission should make a clear commitment to continuing the effort concerning the tracking, collating and disseminating of results arising from MAST project investments, including a description of how this action would be managed.

The Panel experienced some difficulty in carrying out the monitoring process. The Panel felt that future exercises should be provided with more information rather than data, presented in a format which would allow an easier analysis. Much of the "data gathering" part of the exercise consisted of the interpretation of the statistical data which was supplied. While the Panel is sure that the monitoring process will be reviewed under FP5, a number of recommendations are put forward, including:

- the purpose of monitoring should be made more explicit as should the output expected, it should be seen as a rapid, independent check on programme implementation and, given the time and resources available, should not be expected to make broad recommendations;
- information (not data) should be provided in good time in a standard clear format;
- the basis of the process should consist of interviews with Commission staff and the examination of papers provided;
- external sources of feed-back should be clear, e.g. observers' reports from review panels, comments of Programme Committee members, etc.



BIOTECHNOLOGY

In 1998, the Biotech Programme was efficiently implemented and executed. The 154 proposals selected for financial support in response to the 4th Call represent the highest number of proposals commissioned in any single year of the Biotech Programme.

Overall, the total Biotech budget has been committed. All 8 major Programme areas have been covered, using all project modalities; the evolution of demonstration projects was particularly successful. The positive contribution made by the so-called unconventional Programme activities (studies, meetings, etc.) in terms of scientific value as well as flexibility and responsiveness of action is acknowledged.

Industrial participation and penetration, after a period of sharp increase following the introduction of Biotech 2, has apparently reached a plateau. On the other hand, there is a continuing effort to increase the involvement of SMEs, through Exploratory Awards and other measures.

The Unit staff has very successfully carried out a heavy work load employing both conventional and novel schemes. Among the latter, the Panel notes:

- the use of the new tool of "QUICK SCAN" to identify the proposal novelty; and
- internal project evaluation based on a common methodology (Pillar I), as well as on hearings of project clusters with great future potential (Pillar II).

Other significant achievements in 1998 include:

- launching major initiatives in critical areas, including the organisation of several successful, visibility- and public attitude-oriented events, such as the Biotechnology & Finance Forum (May 1998), and the Information Day for the Press (March 1998);
- providing support to biotech-related policy making: extension of the GMOs labeling principle, adoption of the directive on the protection of biotechnology inventions;
- strengthening relationships with Third Countries in the biotech field, with particular mention of the model work carried out for years within the EU-USA Task Force;
- a number of significant scientific and technical findings, expected to further increase with the "maturity" of the projects.

Panel recommendations are mainly concerned with:

- (a) the evaluation of the quality and role (e.g. "defensive" vs. "offensive") of industrial participants in the Biotech consortia;
- (b) the need for particular emphasis on key issues, such as training, dissemination of results to the public, especially at the regional level, biotech entrepreneurship and demonstration projects in the final stages of FP4 and the start of FP5;
- (c) extending the use of scientific databases for "Quick Searches" during proposal selection;
- (d) improving intra- and inter-project co-ordination, e.g. by the involvement of independent and qualified professional managers; and
- (e) taking appropriate actions to avoid a management gap for the remaining activities in FP4, in view of the upcoming transition to FP5, and during this transition.



BIOMEDICINE AND HEALTH

The projects supported by the Commission *have continued to fulfil both the wider EC and specific BIOMED 2 objectives*. Major activities of the Commission were directed in 1998 towards *finalising contracts for BIOMED 2 3rd Call RTD projects and TSE/BSE 1st and 2nd Call Projects and preparing the specific programme and work programme for FP5*. Due to budgetary reasons, completion of 3rd call RTD contracts occurred by spring 1998, resulting in a time interval of *close to one and a half year* between closure of the call and start of all projects. It is recommended that in the future the budget availability allow for the projects to start within no more than one year from the closure of the Calls for Application.

The Panel conducted a survey to establish the level of perception of *European Added Value* (EAV) by means of a *questionnaire*, which was sent to project leaders of the RTD projects (1st Call). The analysis of the responses highlighted the *establishment of synergy, the multinational partnership, and creation of critical mass* of researchers as the main elements contributing to EAV. The experts were favourably impressed by the establishment of the *Project Review Board* for BIOMED 2, and feel strongly *that all projects should undergo scientific evaluation at least once in their life-time* by a project review board as to their results. *Impact output analysis should be an important element* of the BIOMED 2 programme.

The Commission has launched in 1998 a *2nd TSE joint Call*, which resulted in the funding of four additional TSE projects in BIOMED 2. Evaluation of 3rd Call for Fellowship Application was completed. The Panel regarded *fellowships* as an important element both to react flexibly to emerging scientific issues and *to guide young scientists along European science structures*. The Commission should be complimented for this activity. *Accompanying measures* have evolved as particularly valuable tools *to catalyse scientific developments and to promote the European science culture*. EC scientific publications that have emerged from major and topical areas of BIOMED represent highlights of EC policy and *identify BIOMED as a constructive science funding body*.

The programme management has *efficiently responded* to the recommendations that had been issued in the 1997 Monitoring Report.



AGRICULTURE AND FISHERIES (INCLUDING AGRO-INDUSTRY, FOOD TECHNOLOGIES, FORESTRY, AQUACULTURE AND RURAL DEVELOPMENT) (FAIR)

State of Implementation

FAIR, supported by DGVI, DGXII and DGXIV, is strengthening the agro-food industrial sector which produces, develops and exploits biological raw materials for both food and non-food use. It is supporting EU policies in areas such as environmental development and protection. It is significantly strengthening the European science base and building networks across the community. The final budget (739.5 MECU) is not, to our knowledge fully committed. The allocation to DG6 we understand remains at the time of writing under-spent.

Major Achievements

FAIR and its predecessors are demonstrating results of both commercial value and public benefit. Members of both large and small industries, academic institutions and member state governments recognise the excellence of FAIR and value participation. Young (and not so young) scientists sponsored by FAIR and the associated TMR programme are gaining high quality training and increasingly broader perspectives of Europe. A major achievement is the emergence of a community of scientists who continue to collaborate at a European level.

We Recommend that:

The three DGs (DGVI, DGXII and DGXIV) discuss how they can further develop their common interests relating to the consumer, sustainable development and commercial exploitation of research.

An integrated cross-departmental financial database which gives both easy access to detailed information on expenditure and the potential to certify expenditure between DGs, is completed.

The Commission examines all projects related to the environment and sustainable development and ensures cross compliance with relevant EU policies. Progress should be subject to periodic reviews by special studies and results made public.

Calls are carefully worded to ensure that requirements are clear and unambiguous.

The Commission introduces a single evaluation procedure that takes into account both scientific merit and policy relevance. This would aid transparency.

Commission officials ensure National Focal points apply criteria for SME projects consistently across the Community.

On-going monitoring of SME projects be undertaken using, if necessary, external resources.

The Commission services exploit their strategic overview of the FAIR project portfolio and add value to groups or clusters of projects via the co-ordination process.

Scientific-financial audits be carried out on a small (say 2%) number of projects and the process be integrated into future monitoring exercises.

All three DGs (DGVI, DGXII and DGXIV) invite future monitoring panel to participate in their programme review meetings held in the final quarter of the year under review.



NON-NUCLEAR ENERGY (JOULE-THERMIE)

The JOULE-THERMIE Programme addresses non-nuclear energy technology research, development, and demonstration in four main areas: energy strategy; rational use of energy; renewable energy sources; and fossil fuels. JOULE is managed by DGXII, and THERMIE by DGXVII; however, within the 4th Framework Programme it was intended to be an integrated programme. Collaboration between the two Services has been positive in some areas, such as stimulation of SMEs and in planning for FP5. However, the two programme elements do still operate largely independently. There are interfaces between JOULE-THERMIE and the horizontal programmes Innovation and TMR.

Closer integration of the R&D and demonstration elements of the programme is called for. However, it is vital to ensure that the best practices from each of the Services are retained.

The programme's funds have been committed in each of the main areas broadly in line with the original indicative budget. Most of the 280 tasks detailed in the work programme have been adequately addressed in the period 1994-1998, although the Panel feels there has been insufficient coverage in some non-technological areas such as dissemination methodology and socio-economic research.

There is evidence to suggest that the programme has had a positive impact on energy and cost reduction, on environmental performance, and on employment generation. It seems plausible that the programme has contributed to a reduction in industrial energy intensity in Europe, and to global dominance in some areas, such as wind energy technology and photovoltaics. However, work is needed in FP5 leading to a clearer understanding of the concept of European added value. The 1998 Panel also recommends that objectives in FP5 should be as specific and measurable as possible, as this appears to maximise the chances of achieving significant results.

Programme management has been generally effective, with good transparency in Calls and evaluation procedures. Progress has been made in the presentation of Calls, in improving the clarity and specificity of contracts, and in quality procedures, though the Panel feels there is still much to be done in these areas. The programme is especially to be commended for the improvement in participation of SMEs in 1997 and 1998. There has been an increase in information dissemination activities in 1998. Information networks such as the OPET Network and the JOULE Focal Points seem to be functioning effectively.

The Panel is very concerned about workloads in FP5 and, more generally, about the changing role of the Scientific Officer. It recommends a serious study of these issues, with far-reaching plans to ensure Officers' ability to maintain an expert strategic overview in their technological areas, on-going on-the-ground contact with projects, and a proactive approach to project cluster development.

The Panel recommends more work on an integrated quality assurance system across the programme, and the urgent development of an information system capable of providing real support to a complex and multi-faceted programme. There is also a need for an overall strategy and plan to ensure an integrated approach to information dissemination, and to maximise exploitation of results. Independent resources are needed for on-going evaluation of actions aimed at maximising exploitation.



NUCLEAR FISSION SAFETY (NSF)

The Nuclear Fission Safety Programme (1994-1998) comprises five research areas with the following objectives:

1. **Exploring innovative approaches** in the field of reactor safety, passive decay heat removal and nuclear fuel cycle concepts (partitioning and transmutation).
2. Improve **reactor safety** by investigating severe accident phenomenology and developing accident management measures.
3. Develop methods for **radioactive waste disposal, management of radioactive wastes** and strategies for **decommissioning** nuclear plant.
4. Improve knowledge in **radiological impact on man and environment**, on mechanisms and epidemiology, calculating risks and reducing exposures.
5. **Mastering events of the past**, identification of factors influencing health, restoration of contaminated land and emergency management procedures.

The Panel believes that these objectives are being met, and this is supported by the discussion of the main achievements, which is given in section 3.4 of the document. In addition, the Panel is satisfied with the way in which the Commission staff has managed the programme. The programme has been implemented by a single call, with two deadlines for shared cost projects (March 1995 and Feb. 1996), and one continuous call for concerted actions which ended on 1 November 1997. 460 proposals were received, 216 contracts let, of which 151 were shared cost and 65 concerted action. By the end of 1998, 48 contracts had been completed.

The major recommendations of the Panel are summarised below (they are also given in more detail in Sections 2 and 4).

1. To consider parallel processing of contract negotiations and consultation with other DGs to shorten the pre-contract negotiation stage of contract vetting.
2. Evaluation panels should be appointed for the whole programme, and they should be given clear guidance on how to judge non-quantitative acceptance criteria such as "EU added value" and "scientific value".
3. Dissemination: more attention should be given to informing decision-makers on the rationale and achievements of the programme.
4. To consider direct support for crystallising and organising appropriate EU networks.
5. To make a review of the future perspectives of the R&D capabilities and needs of front line applicant countries in the NSF area.
6. Maintain present methods for programme planning, tender evaluation and progress reporting.
7. The monitoring process of FP4 should continue into next year since the majority of the projects are still underway, even though the programme has formally been completed.
8. Measurements of trends through monitoring requires the identification of 'trend parameters' which can be followed by the monitoring panels to give a better representation of specific trends. Examples are given in Section 4.
9. An attempt should be made to increase the participation of industry and utilities, especially on the problem-solving and competitiveness aspects of FP5.
10. The different basic aspects of radiation protection should be kept together, with applications distributed to difference departments as necessary.
11. We recommend that DGXII maintains an overall awareness of the Union's capabilities in the programme areas, with a view to providing an early warning of possible losses of essential facilities.



CONTROLLED THERMONUCLEAR FUSION

According to the Commission's request, acting as independent external experts, we have prepared this report taking into consideration the documents provided and listed in the appendix. As a whole we found that, in 1998, the Fusion Programme has been managed and developed in full compliance with the guidelines and directives issued by the Council. We commend the quality of work carried out, the adherence to agreed timescales and the economy of resources devoted to Programme co-ordination.

Regarding the structure and pace of the activities within the Programme, for the most part they remained the same as for the whole FP4 period. However, the NET Agreement terminated on December 31, 1998 and the JET Joint Undertaking will finish at the end of 1999. A new multi-partner agreement called European Fusion Development Agreement has been prepared in 1998 to provide a framework for activities previously covered by NET and to continue using JET as the best available and most powerful facility for fusion research. In addition, at the occasion of the beginning of FP5, a new organisational structure of DGXII has been set up. We hope that all these changes meet the Fusion Programme development requirements and we trust that the new organisation will prove as efficient and fruitful as the previous one.

The European Added Value is clearly visible in the whole Fusion Programme, as a very convincing example of European co-operation. Joint efforts such as JET and ITER and the many impressive results obtained would have never been achieved through purely national efforts. In addition, there are many multi-lateral co-operations and the so-called clusters between Associations. We wish to highlight the exemplary way in which ITER-EDA has been carried out. It has been extended for three years to focus on a reduced mission/reduced cost device; however, the US party has announced its withdrawal after July 1999.

In order to support the development of fusion power as a potential energy source, one of just a few alternatives for the next century, we recommend:

- to implement EFDA including the continued use of JET facilities as quickly as possible to avoid damaging hiccups in the implementation of the Programme;
- to continue ITER work even if it is a reduced cost version which remains reactor-relevant;
- to continue the search for at least one candidate site in Europe; and
- the further development of a 14 MeV neutron source.

We support the efforts made:

- in materials development;
- in socio-economic studies; and
- in favour of public acceptance of fusion power.

The Panel feels that the annual monitoring exercise gives a useful opportunity to look into the Programme and make helpful recommendations. Under FP5 and the new organisation of DGXII, the external monitoring process may be different and we would therefore recommend that this process be adapted to the new structure while taking into account the specific characteristics of the EU fusion research.



TRANSPORT

This is the fourth annual Monitoring Panel report covering the Transport RTD Programme, which is strongly policy-oriented. All contracts have now been let, and the allocated funds fully committed. The objectives of the Work Programme are being achieved by the projects, and the Programme is being well managed, assisted by the development of a new software tool.

The scientific officers have a high level of technical knowledge about each of the projects in their portfolio and are fully aware of the requirements of each task. They are able to exercise quality control and to ensure that the relevant findings are communicated to the DGVII policy units and other interested bodies.

The various Programme procedures, from announcing calls for proposals to negotiating contracts, are now transparent and well documented. We note in relation to the evaluation of proposals that there are some minor problems that need to be further addressed, concerning the weighting of evaluation criteria for different types of study, and the need to ensure that the track record of applicants is taken into account when recommending proposals for funding.

The major recommendations of previous Monitoring Panels have now been fully implemented, to the extent feasible within the permitted procedures in FP4. In particular, in relation to developing and enhancing procedures for dissemination and exploitation.

Among the major achievements in the past year, can be noted:

- A major effort to disseminate project findings at a cluster level, with the launching of the EXTRA project and a number of high profile conferences.
- The evolution of the ERTMS Programme (European Rail Traffic Management System) from a research exercise into a TEN-T implementation phase.
- Inputs to several Commission policy papers and statements, including the White Paper on "Fair Payment for Infrastructure Use", the Green Paper on the "Citizens' Network" and the Communication on "Transport and CO₂".
- A major contribution to European added value, through enhanced industrial co-operation and the development of various scientific and policy networks.

Some concerns exist about the need to develop adequate migration paths from FP4 to FP5, to ensure that the knowledge gained in FP4 is used to best advantage, and that the philosophy and structure of the new Programme are exploited to full effect.

A number of specific recommendations are made, relating both to the execution of the current Programme and the future operation of the Monitoring Panel. The former cover the proposal evaluation procedures, monitoring of project quality, formal liaison among Programme-wide initiatives and migration paths from FP4 to FP5.



TARGETED SOCIO-ECONOMIC RESEARCH (TSER)

This TSER monitoring report comes at the end of the 4th Framework Programme. The three calls have attracted around 1.200 applications from which 165 proposals have been selected. But the Programme is far from ended: 52 new projects have barely started, and will be active for more than **two years**. And it also comes at a moment in time where **results** from projects financed in the first call are becoming increasingly *visible*. Therefore, we have specifically focused on **dissemination** and relevance of the **policy** implications of research.

The **third call** has introduced an innovative Work Programme, based on *integrated research tasks* and *strategic orientations* which has been conducive to a better coverage of the programme objectives. TSER has made a substantial contribution to the formation of a number of European research networks and there are outstanding examples of co-operation between policy makers and researchers in the analysis of social problems. The newer and the less developed members of the European community have increased their participation both as network members and as co-ordinators. The TSER management has made big improvements in these four years even though the overall process of selection and contract negotiation remains unduly time consuming.

Hence the Monitoring Panel **recommends**:

1. To increase the transparency of the evaluation process by making public the list of all selected evaluators and establishing an open procedure to register possible “claims” or *incidences* occurring during the evaluation process.
2. To streamline the selection and negotiation procedures to shorten the overall period of time in three to six months.
3. Guidelines should strongly recommend the inclusion of policy makers within the teams and such inclusion be taken into consideration for evaluation purposes. Over-budgeted and over-timed projects should be trimmed down. A balance of shorter and longer termed projects should be aimed at.
4. Administrative management procedures of the projects must be simplified in order to eliminate unjustified administrative burdens on research teams, specially on co-ordinators. Project reporting should follow a systematic approach: Databases should be constructed to permit the follow up of the implications of research policy on other policies such as regional, cohesion and gender policies.
5. To reduce or at least stabilise the ratio of projects per scientific officer. The 5th Framework Programme should not conceal the need to specifically oversee the management of the over a hundred projects that continue from the 4th Framework Programme and most of all should not result in a loss of attention to dissemination activities of these projects.
6. Effective dissemination of results requires the use of specific, professional skills to devise an appropriate *marketing strategy* including (i) workshops with experienced communicators to help develop dissemination plans for each project; (ii) Annual Conferences to raise general awareness and *expectations*, supported by professional public relations staff; (iii) *Repackaging* similar and/or complementary projects, integrating conclusions in ad hoc reports, enhancing dissemination; (iv) Further development of the TSER WEB-site to include *search engines* to identify relevant reports more easily and (v) publishing more *traditional* Annual Reports summarising the on-going research and their policy implications.
7. Closer and systematic links with the Joint Research Centre (namely, the IPTS) and other relevant *policy oriented* Directorates would help to bridge the gap between research and policy and carefully plan a dissemination strategy.
8. The integration of social with technological aspects in the 5th Framework Programme is welcome, but should be properly staffed and funded to prevent the marginalisation of the study of social aspects of technological research.
9. As the process of European integration deepens, new inequalities will come to surface. They constitute social challenges and the study of their policy implications should occupy a central position in the list of research tasks for the Key action *Improving the socio-economic knowledge base* in the 5th Framework Programme. Among them, **the gender dimension** should be fully integrated into future research projects and networks as one of the relevant challenges to European Policies.



COOPERATION WITH THIRD COUNTRIES AND INTERNATIONAL ORGANIZATIONS (INCO)

1998 was a transition period since preparations for FP 5 needed as much attention as the completion of FP 4. This monitoring exercise therefore covered not only the last year of FP 4 but also overall developments and results of the INCO programme and its future role in FP 5.

Programme Management: Programme implementation covered the final calls of FP 4 for INCO Copernicus and INCO-DC, the preparation of S&T agreements with 3rd countries and accompanying measures. With all activities in parallel, Programme staff had to deal with high workloads, and the panel recognises with satisfaction that the Programme was executed in accordance with the objectives and that the budget has been almost fully committed. There has been further improvement in the timeliness and quality of information provided by the Commission and the Programme Committee has been well involved in all relevant matters. However, no improvement can be seen in the Commission's internal Management Information System, or in transparency concerning the names of proposal evaluators. The quality of the evaluation process and the selection of proposals itself was considered good. Contract negotiations seem to have become more time consuming, since negotiations for two calls started the same period.

Activities in the different areas of INCO: The Panel welcomes the activities of the joint Working Group on Synergy between EUREKA and the FP. It is also convinced of the special advantages of the bottom up approach of COST. INCO Copernicus is a well-established and widely recognised frame for co-operation with CEEC and NIS. For CEEC the network of FEMIRC's can continue to play an important role for dissemination information; for NIS, especially Russia, continued and substantial efforts for information dissemination are required under FP 5. 1998 brought significant progress concerning S&T agreements with a number of 3rd countries. However, there is no clear strategy for implementation. INCO-DC enjoys growing recognition and support, and all its main objectives seem to have been well covered.

Identified major trends: Scientific quality and excellence were the predominant criteria for the selection of proposals. Due to the limited funds, the success rates in shared cost actions remained rather low with an average rate of approx. 15 %, and in the last two calls a large number of A-rated proposals had to be rejected. The Panel is concerned about the low rates of participation from some strategically important DC's,

INCO-DC has maintained the focus on RTD as a strategic element for Community development policy through good co-operation with DG VIII. It has also succeeded in getting the European research community involved in development issues. With INCO Copernicus, CEEC's have been through a most valuable process of co-operation and evaluation which has helped to consolidate their RTD potential and to prepare scientists for the association and FP 5.

In this monitoring exercise, special attention was given to the European added value of the INCO programme. The Panel greatly welcomes the efforts to ensure coherence with other Community policies. There is also some progress concerning complementarity with Member State policies, but there is room for improvement on this touchy issue which has a foreign policy dimension.

Conclusions and recommendations:

As a general observation, the heterogeneity of the programme is a real challenge to the management, but the persons in charge have well been able to cope with it. The funds available for INCO are not at the level of the interest of the European research community in this programme. The Management Information System has to be improved and names of reviewers should be provided to Programme Committee members.

COST remains a very valuable instrument, but thorough analysis is needed concerning the structures and the problems arising from a continuous growth in the number of actions. In INCO Copernicus the "collective" monitoring is an interesting approach, and accompanying measures had a very positive impact. For S&T agreements the Panel is concerned about active promotion and implementation. The Panel welcomes initiatives to increase DC leadership in INCO DC projects and recommends the continuation of dissemination activities which have proven successful. The Commission should take steps to strengthen co-operation between INCO and MEDA.



DISSEMINATION AND OPTIMIZATION OF RESEARCH RESULTS (INNOVATION)

The Innovation Programme is a horizontal programme which has not only to enhance difference technology transfer projects up to a demonstration phase, but also has to gain information in order to propose tools and data for other thematic activities and further Commission initiatives, in particular within the definition of the 5th Framework Programme.

Considering the three main objectives, promotion of an environment favouring innovations, creation of an European open area for the diffusion of technologies and supplying this area with appropriate technologies, the Panel members regard the eleven action lines implemented within this programme as being consistent with these. These actions did contribute at an environment favourable to the diffusion of technologies and through the TT/TVP projects, they helped to develop appropriate technologies. Even if some lines may not be regarded as fully successful in their impact, we assume that the information collected will be very useful if properly reviewed.

Since this programme aims at developing new activities, some action lines have been rightly redirected by the management during the execution of the programme. The Panel members appreciate this reactivity. For the future they recommend conducting such pilot lines with measurable efficiency indicators which could be used along the execution of the programme, in order to be able to evaluate them properly.

The Panel members consider that the projects have been carefully selected with a real European added value. The information guidelines delivered to the proposers were particularly useful. We estimate however, that more emphasis might have been put on the inter-relation between the different action lines in order to fulfil the objectives more effectively. Similarly, we suspect that the dissemination potential for technical projects or the co-operation of several SMEs may not have been sufficiently taken into account when the projects were selected. However, we note the efforts carried out in order to redirect the projects whenever it was necessary to fulfil the objectives of the Innovation Programme. This is particularly true for the information sets and indication provided for each line and for the information available and updated in CORDIS. The implementation of the IPR line is another good example of an action tackled with European added value.

The overall conclusion on the Innovation Programme is positive. The Panel members appreciate the efforts made to improve the efficiency and the consistency of the different action lines in the light of the results obtained during each exercise. In this respect, four points are worthy of attention:

- Regional actions, Innovation relay centres, information and dissemination relay services helped decision-makers at the regional level to be aware of the importance of innovation in the economic growth.
- Co-operation between industrial companies and research organisations have been encouraged up to a demonstration phase. The IPR line helped proposers to rely on an industrial property policy.
- Many pilot actions were carried out. These experiences even the less successful would enable good practice guidelines to be prepared and translated into tools for the future.
- Many specific home-pages and information services through CORDIS were made available as well as help lines.

In order to optimise these efforts, close co-ordination should be ensured in the FP5 programme between initiatives taken at thematic levels (activity 1) and horizontal levels (activity 3). A specific budget and appropriate human resources should be dedicated to the co-operation. The tools and information services developed from FP4 within the Innovation Programme would be able to foster such a co-operation. Since the dissemination and the technology transfer towards SMEs and regions less involved in the Union RTD activities is an important objective, a co-ordination should be implemented with the use of structural funds in order to improve the efficiency of the research programmes. This could be obtained with amore active role of regional relays. Similarly, a specific effort should be devoted to the promotion of seed capital funds, in particular those investing in countries and regions other than their place of origin.



STIMULATION OF THE TRAINING AND MOBILITY OF RESEARCHERS (TMR)

The 1998 Monitoring Panel believes the Training and Mobility of Researchers (TMR) Programme's profile is well established in the European Scientific Community. This is demonstrated by the high rates of applications following calls for proposals. 1998 has been characterised by completion of FP 4 (2 calls for proposals), Mid-term Reviews of all activities and preparation for FP 5. **The Panel is impressed with the programme's achievements and its management.** The Commission's staff has been dedicated to continuous improvement in the Programme and has taken up suggestions from its large user community. The TMR Programme is unique in the 4FW. It complements thematic RTD Programmes by following a bottom-up strategy, allowing proposals in broad, non-specified fields of research. The 1998 Panel is pleased that many of the recommendations of the previous year's Panel have been taken up in 1998 or are planned for implementation in FP 5.

The **main conclusions** of the 1998 Monitoring Panel are:

1. In terms of efficiency and implementation of the programme, **progress has been continued** from previous years. In particular in 1998, the monitoring and follow-up of contracts have been tackled more seriously by all Programme Activities.
2. The earlier Panel's concerns regarding the development of an appropriate **impact assessment system** still remain valid for most of the programme's activities. With the exception of the Training through Research activity, no systems have yet been put in place and little progress has been made to develop these systems.
3. The Panel welcomes the Industrial Host Fellowships in FP 5 as a valuable innovative mechanism to increase **industrial participation**. However more should be done in the other TMR activities to increase **industrial involvement** through dissemination and networking activities.
4. The Panel remains impressed with the high quality of the various programme activities, but remains equally concerned that they may be functioning too independently of each other. The potential benefits of **synergy** of the programme are lacking.
5. The difference in resources, quality and positioning of the **National Contact Points** has created a situation where in some countries (potential) applicants have better access to information and contractual support compared to others.

Four **key recommendations** follow from these conclusions:

1. We recommend, and reinforce, the need for a specific "**Task Force**" to establish a methodology and control process to **monitor the impact** of the whole TMR.
2. **TMR's management, in particular its Director and the horizontal service should develop activities to increase the synergy between the separate activities in the programme**, in order to increase European Added Value and develop a larger critical mass in terms of the programme's impact and external profile.
3. The Panel specifically recommends steps be taken **to reinforce the interface between the Programme Managers of TMR (IHP) and the National Contact Points**. This is an issue the Commission should take up with the Member States.
4. The Commission should ensure that more efforts are made by TMR contractors **to disseminate results to and network with prospective user communities**. This could be required as one of the contract deliverables.



ANNEX IV INFORMATION ON THE JRC

Observations of the Board of Governors

The Joint Research Centre has undergone much change in the course of 1998.

First of all, the reorientation of the mission of the JRC: to *provide customer-driven scientific and technical support for the conception, implementation and monitoring of EU policies. As a service of the European Commission, the JRC functions as a reference centre of science and technology for the Union.*

The Board acknowledges the efforts carried out by the new JRC management to adapt the scientific activities to the priorities of the European Union policies and to re-structure all JRC activities around its new mission.

The impact of the new mission is already demonstrated in the present 1998 Annual Report illustrating the JRC work during the last year of the 1995-1998 programme period under the 4th Framework Programme of Community Activities in Research and Technological Development. The report thus highlights several JRC achievements in the service of the European citizens and in support of a large spectrum of the EU policies.

The European Technology Transfer Initiative project represents an imaginative step towards optimising the use of European and world-wide level of JRC research and technological results. The Board, aware of the inherent challenge of a project of this nature, will continue to watch its viability in the coming year.

The Board notes the JRC's performance in competitive activities, notwithstanding the end of the Fourth Framework Programme and consequently diminished opportunities for participation in the shared cost action programmes.

Such participation also leads to increased collaborations with national research and industry. The Annual Report testifies the multitude and quantity of these collaborations.

With regard to the HFR Supplementary Programme, operated by the JRC in Petten, the Board welcomes the inauguration by the Commissioner Cresson of the Boron Neutron Capture Therapy facility, and the promising results of this therapy for some brain cancers.

The JRC in 1998 devoted much effort to preparing the Fifth Framework Programme and the JRC specific programmes. The Board was closely involved in this demanding process which led to the endorsement by the Council and Parliament of the JRC's Specific Programmes as proposed by the Commission with the approval of the Board. The difficult compromise on the financial resources led to final figures lower than originally proposed implying the need for a further effort to reduce administrative and overhead costs and to rationalise the use of resources.

In line with the new mission, an internal reorganisation took place in 1998 with the setting up of the Health and Consumer Protection Institute, the Administration Directorate and the Audit Unit as the most important. The Board welcomes Mr. Jean-Marie Cadiou as new Director of the IPTS in Seville, Mrs. Lena Torell as new Director of Programmes and Mr. Raoul Prado as Director of the new Administration Directorate.

The Board has said farewell to the former Chairman, Professor Flemming Woldbye. The Board expresses herewith its appreciation and warm recognition to him for the many years of service he has dedicated to the JRC Board of Governors.

The Board expresses its thanks to the Commissioner, Mrs. Edith Cresson for her unfailing support of the JRC. Finally the Board send its thanks and appreciation to the entire JRC staff for its hard work and dedication during the demanding year of 1998.



PART B

**COMMISSION SERVICES'
COMMENTS
ON
THE 1998 FP MONITORING
REPORT**

General response

The Commission Services would like to thank Mr. Niels Busch and the members of the independent Framework Programme Monitoring Panel for their report which reflects the broad range of experience of the panel members covering fields ranging from scientific and industrial research to policy-making. The important contribution of the 18 Specific Programme Monitoring Panels, whose reports provided a valuable basis for the 1998 FP monitoring exercise, is also appreciated.

The FP Monitoring Panel's report, covering the last year of the 4th Framework Programme implementation, has arrived at the time of transition from the 4th to the 5th Framework Programme. The Panel acknowledges that the major achievement of the Framework Programme has been the successful delivery of one of the world's largest and most complex research programmes whose results should help to underpin future European economic and social development.

The Panel's recommendations address issues of real importance for the implementation of the 5th Framework Programme. Their recommendations presented in two sub-groups (overall and monitoring) are addressed below.



I **Response to the overall recommendations** (recommendations 1 to 5)

1. The concept of **European added value** is indeed central to the rationale for Community research which, like other areas of EU policy, is subject to the criterion of subsidiarity. Fundamental requirements are that Community research should be of the highest quality and relevance to Europe, and should be conducted in areas where its objectives can be achieved more efficiently than by Member States acting alone. The Treaty responds to these requirements in setting the basic objectives, structure and approach of the Framework Programme, including in particular the requirement for transnational collaborations in research projects and transnational mobility of research fellows.

FP5 has been designed and implemented to make European added value a vital consideration in the choice of research themes and the selection of projects. This has been done through the systematic use of criteria including those relating to the European dimension of the problem, the European added value of the consortium, and the project's contribution to the implementation or the evolution of one or more EU policies. These aspects of research find their place within the problem-solving approach which characterises particularly the Key Actions under FP5 and the fact that "deliverables" are identified in the Work Programmes.

The approach to FP5 is thus the product of an ongoing reflection on the concept of European added value and its application to research policy so as to achieve a progressively more optimal relationship between national and EU research. Whatever the approach adopted, it must, however, always be sufficiently flexible to allow for the considerable diversity of objectives, activities and contexts surrounding research. Experience of implementing FP5 should provide good practical experience and facilitate further progress.

2. Concerning recommendation 2 on the **exploitation of FP4 projects**, the Commission Services are in agreement with the monitoring panel on the crucial importance of following up and promoting such exploitation. Contractual responsibility for exploiting the results of Community RTD lies with the project participants, so that action at Commission level must be limited to complementary initiatives commensurate with the resources available. Nonetheless, each Specific Programme will facilitate and encourage the use, commercial exploitation or dissemination of FP4 results by the means most appropriate in its field.

The Commission's re-organisation along FP5 lines will help as the follow-up of FP4 projects will be organised within the new "problem-solving" oriented structure. The directorates for the thematic programmes will have the task of monitoring such exploitation in a pragmatic way. In FP5, stronger contractual requirements for the production of Technology Implementation Plans will make such a task more transparent. For FP4 projects, full use will be made of the possibilities offered by the contracts for monitoring project exploitation, where appropriate.

The FP5 "Innovation and participation of SMEs" programme will also play a complementary role, notably with a help-desk to provide information and support services in matters of innovation financing and another one for advice and information on intellectual property rights.

3. The Commission Services have developed, over the last 12 months, several **management information systems**:

First, an internal report giving an overview of the milestones in the lifecycle of RTD contracts is prepared on a regular basis by the central administration.

Secondly, a working group has been active with the aim of monitoring late contracts and commitments. Monthly statistics and lists of late contracts and commitments have been sent to a group of liaison officers within each Scientific Directorate. Meetings are also held with each directorate separately in order to invite them to give feedback on those contracts and commitments where difficulties persist.

Thirdly, with regard to the centralised audit management, a complete procedure has been set up during the last 12 months in order to formalise and manage more effectively specific audit requests coming from the Scientific Directorates. A group of liaison officers has also been set up in order to improve the information stream between the centralised audit unit and the various Directorates.

In addition, a project to create a "data warehouse" as an aid to decision-making was launched. While the first applications will cover FP5 activities, it is envisaged to extend the project to previous Framework Programmes. The data warehouse, which cover a core subset of the data available in the different management systems will increase, because of its "natural language" interface, the information access to less experienced managers. According to emerging needs, the data set can be downsized or upsized. The data warehouse will also enable the management of the historical dimension of the data as well as analysis on several other dimensions. The techniques used allow the control of important quantities of information and will substantially increase performance levels compared to the existing transactional information system. Finally, as the data warehouse will progressively integrate data covering the entire Framework Programme activities, it will ease comparison over Programmes and facilitate data aggregation at the FP level.

4. Concerning recommendation 4 on innovative **management techniques**, the inter-service management sub-groups have been working on incorporating the best FP4 practice into general management rules for FP5. They have each prepared reports whose conclusions are being implemented. The work of the inter-service management group will continue as will that of appropriate sub-groups. Their work will be reviewed and continued where appropriate so as to better “fine-tune” new management techniques in the light of further experience gained in the implementation of FP5. For example, this might be the case for proposal evaluation procedures. In the context of its reinforced commitment to transparency, the Commission will give detailed information to the European Parliament and the Council on these issues, as well as regular and thorough information to the Programme Committees.
5. As far as the fifth recommendation is concerned, there is an obligation on each activity of the Framework Programme to disseminate, as widely as possible, the outcome of the activities that it supports. This dissemination takes place not only amongst the scientific community but also amongst users (such as policy-makers) and, as and when appropriate, amongst the general public. Indeed, within FP5, some activities initiated within FP4 (‘c.f. the IST Programme) are foreseeing the use and development of state-of-the-art multimedia and networking techniques in order to promote access to Europe’s scientific and cultural heritage.

Information of a general nature and appeal (such as press releases and success stories) is also disseminated through the work supported by DGXII’s Communications Unit which produces a range of promotional material.

Moreover, the importance that the EU and the Commission attaches to scientific awareness and education, led to defining the objective of raising public awareness of science and technology as the subject of a clearly-defined action within the new Human Potential Programme of FP5. The objectives of this action are to bridge the gap between S&T at the European level and the public; to improve the public’s understanding of S&T; its beneficial impacts on society and its limitations; and to improve scientists’ understanding of the issues and subjects of concern to the public.

With regard to the links to policy-makers, in particular to RTD policy-makers, the Strategic Analysis line of the Improving Human Potential Programme is specifically aimed at the creation of a continuous open dialogue between RTD policy-makers and experts with a view to analysing, synthesising and developing knowledge on strategic RTD policy issues of European relevance and to support the exchange of experience and mutual learning.

In addition, with its Annual Report on RTD Activities, the Commission provides policy-makers and interested parties with a comprehensive, non-technical document on Framework Programme objectives, implementation and results. It is available on the Internet and will be disseminated widely in a reader-friendly presentation.



II Response to the recommendations on monitoring (recommendations 1 to 4)

1. Annual Management Reports:

Already in 1996, the monitoring reports emphasised the need to focus on progress, results and impact. In response to this need, Qualitative Overviews on annual progress were introduced in 1997 as input to the work of the Specific Programmes' monitoring panels. These Overviews covered activities at the programme and accompanying measure levels, and addressed progress in that year in achieving programme objectives; new measures introduced by Programme Management; major achievements; and, new important developments concerning socio-economic challenges and proposed actions. The inclusion in the Overviews of the rationalised set of core indicators and analyses (see Point 4 below) will provide future monitoring panels with the recommended Annual Management Reports.

2. Management Targets:

In 1999, the first year of FP5 implementation, the Programmes will cover the management targets which include, among others, the establishment and operation of the internal FP5 management structure, the launching of the new calls for proposals and the continuing internal discussion and, where appropriate, the implementation of the improvements in the management procedures put forward by the inter-service working group on programme management.

The Programmes have presented a "road map" of annual targets published with the work programmes, and have outlined the on-going related activities to be carried out in 1999, published in the 1999 Annual Report on RTD Activities.

In addition, Annual Report activities will include a section and an annex on forward plans, from which the monitoring panels may draw succinct information on management and implementation targets for 1999.

3. Synergy and Co-ordination:

The issue of synergy and co-ordination between Programmes and between Programmes and policies will be addressed in FP5 mainly through the activities of the newly established co-ordination mechanisms, notably the Group of Directors responsible for the programmes and the Units with horizontal responsibilities for co-ordination. A special section on synergy will be included in the Qualitative Overview for each Programme.

4. Rationalising Core Indicators:

The core indicators were established in 1995 in accordance with the CREST advice (CREST/1208/95) to serve three main purposes: (a) comparability across Specific Programmes;

(b) adherence to an agreed set of information for the purposes of monitoring and five-year assessment; and, (c) complementarity in linking successive annual monitoring exercises for the input to the five-year assessment.

In each successive year from 1995 to 1998, efforts have been undertaken to streamline the core indicators and their presentation in order to avoid generation of "statistical mountains". In general, the core indicators have been used by the Specific Programmes' monitoring panels as reference information. In FP5, the production and utility of core indicators will be further improved by the progressive development of a central information system (i.e. common data warehouse).

In this context, the new approach emphasises the provision to the monitoring panels of “core information” (i.e. indicators based on assembled and analysed data). The core information will be limited to what can be usefully delivered to the panels at the out-set of the monitoring exercises, and will be complemented according to the panels’ requests and the emerging needs during the exercise to include, in addition, programme-specific indicators.



European Commission

**EUR 19086 — 1998 Annual monitoring report on the fourth framework programme
and the Euratom framework programme**

Luxembourg: Office for Official Publications of the European Communities

1999 — 69 pp. — 17.6 x 25 cm

ISBN 92-828-7709-4

The decisions for the fourth RTD framework programme⁽¹⁾ and the Euratom framework programme⁽²⁾, both covering the period 1994–98, require that the Commission shall continually and systematically monitor, with appropriate assistance from independent external experts, the progress of the programmes.

This publication contains the fourth annual monitoring report of the framework programmes, prepared by a panel of high-level independent experts (Part A). The report presents a strategic assessment of progress during 1998 and a set of recommendations covering the continued implementation of the fourth framework programme and the transition to the fifth⁽³⁾. Part B presents the Commission services response to the recommendations.

⁽¹⁾ Decision 1110/94/EC.

⁽²⁾ Decision 94/268/Euratom.

⁽³⁾ Decision 182/1999/EC and 1999/64/Euratom.

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