European Commission

Community Research

General information

2000 Annual Report on

The Socio-economic Dimension in the Fifth Framework Programme

EUR 19866

2000 Annual Report on

The Socio-economic Dimension in the Fifth Framework Programme

June 2001

IMPROVING HUMAN RESEARCH POTENTIAL
AND THE SOCIO-ECONOMIC KNOWLEDGE BASE

Interested in European research?

RTD info is our quarterly magazine keeping you in touch with main developments (results, programmes, events, etc).
It is available in English, French and German. A free sample copy or free subscription can be obtained from:

Directorate-General for Research, Communication Unit
European Commission
Rue de la Loi/Wetstraat 200, B-1049 Brussels
Fax : (32-2) 29-58220
E-Mail: research@cec.eu.int
Internet: http://europa.eu.int/comm/research/

Published by the EUROPEAN COMMISSION

Research Directorate-General

A great deal of additional information on the European Union is available on the Internet.
It can be accessed through the Europa server (http://europa.eu.int).

EUR 19866

Printed in BELGIUM

PRINTED ON WHITE CHLORINE-FREE PAPER

2000 Annual Report on

The Socio-Economic dimension

In the Fifth Framework Programme

Foreword

Mr Busquin

This report on the socio-economic dimension in the 5th framework programme is the second of its kind. It is still too early to draw even provisional conclusions on the research in progress. Nevertheless, a need has emerged to make sure that as science and technology develop they take full account of the needs of European society and of the economic and social challenges which it faces. This is the objective of this report.

The words "socio-economic dimension" raise the question of forming a common vision of "the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion." This is a constant challenge both for scientists and socio-economists and for politicians. This is one of the reasons why I have been advocating a policy based on creating a "European research area". At the same time, the governments have been exerting influence and adding impetus by steering R&D in directions leading to greater practical commitment.

These twin objectives are the result of, amongst other things, the ever faster pace of technological progress today, producing social changes on an unprecedented scale. This is why this report focuses in particular on recent developments in science in the fields funded by the Commission with a view to improving Europeans' quality of life, aiming for sustainable growth drawing on all the resources of the emerging information society, making more rational use of energy resources, and taking greater care of the environment.

One final thought on reading this report: one characteristic of our society today is, precisely, that citizens now tend to consider scientific discoveries as in a state of flux and open to question. The advantage of constantly calling them into question in this way is that it encourages broad participation by as many citizens as possible to gain greater understanding and acceptance of the radical transformations needed and adapt existing structures to provide a better response to these challenges.

This is the Commission's central concern for new ethics governing the responsibility of all socio-economic partners involved in scientific and technological research.

I hope that, more by the questions which it asks of the scientific community and of European citizens than by the preliminary recommendations which it makes, this report will be a valuable contribution to the debate on what is at stake with the European Union's research and technology policies.

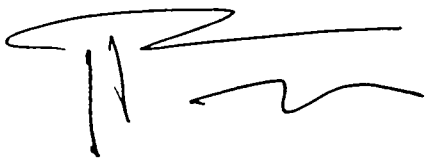

Table of contents Page

PREFACE

In the Decision of the European Parliament and the Council adopting the Fifth Framework Programme of the European Community for research, technological development and demonstration activities (1998-2002), the *Human Potential* programme has been assigned the task to "...ensure, through appropriate monitoring and co-ordinating mechanisms, the adequate incorporation of socio-economic considerations into the research activities of the thematic programmes"[1].

In addition, the Council Decision which adopted the specific programme for research, technological development and demonstration on "Improving the human research potential and the socio-economic knowledge base"[2], stipulates that the *Human Potential* programme will co-ordinate and support relevant activities throughout the framework programme. In relation to socio-economic research, it is stated that "co-ordination will be achieved through participation in the elaboration of the work programmes, support in the creation of appropriate evaluation mechanisms, in particular through the participation of socio-economic scientists, and collection and dissemination of relevant information, in order to ensure that the socio-economic dimension is consistently taken into account in the specific programmes".

Finally, the Council Decision provides for the creation of a subcommittee of representatives of members states to provide expert advice both on the implementation of socio-economic research in the programme, "as well as to provide an overview of socio-economic research across the whole of the framework programme"[3].

This report is a result of this mandate and provides a picture of the socio-economic dimension in the activities of the specific programmes of FP5 in the year 2000. It is the second *Annual Report on the Socio-Economic Dimension in FP5*; the first (for the year 1999) was published in April 2000.

The report can be downloaded from the web site of the *Human Potential* Programme Web site: http://www.cordis.lu/improving/socio-economic/coordination.htm. Printed copies may be requested by e-mail from the programme's helpdesk: improving@cec.eu.int

[1] European Parliament and Council Decision 1999/182/EC, OJ L26 of 1.2.1999, p. 27.

[2] Council Decision 1999/173/EC, OJ L64 of 12.3.1999, p. 105

[3] Article 7.5 of Council Decision 1999/173/EC, OJ L64 of 12.3.1999, p. 108

EXECUTIVE SUMMARY

This second report on the socio-economic dimension in the fifth framework programme shows two changes compared with its predecessor: first, this year all the key actions in each programme are analysed and, second, a clearer definition of the concept "socio-economic dimension" is beginning to emerge from the programmes and from the workshop organised by the coordination team on interdisciplinarity.

The principal objective of the first of these changes is to cover the whole of the fifth framework programme in order to lay the foundation for a forthcoming evaluation. This evaluation cannot take place until the science and technology projects selected for funding following the calls for proposals have been in progress and produced enough to give clear indications of how they are taking the societal dimension of Europe into account (a preliminary analysis will be made for the 2001 report).

The second change is to meet the demand from several programmes to fine-tune the recommendations made to evaluators in the pre-evaluation briefings. It is also in response to the calls made by the Committee on the "Improving Human Potential" Programme and by the External Advisory Group on the key action "improving the socio-economic knowledge base"[4] when the first report was presented and to the recommendations made in the various reports evaluating the "Improving Human Potential" Programme and the framework programme.

The 1999 annual report made the following recommendations:

1. Greater account must be taken of the socio-economic dimension in the work programmes for all the key actions.
2. Working documents (guides for proposers, guides for evaluators, info-packs) must define the concept "socio-economic dimension" more clearly in relation to Community policy.
3. The multidisciplinary approach must be reinforced and applied.
4. Scientific officers must be briefed to put them in a better position to evaluate the "socio-economic dimension" in projects and programmes.
5. More must be done to inform the scientific community about the importance of taking fuller account of the socio-economic dimension in projects in order to attain the societal objectives of the fifth framework programme and contribute to creating the European Research Area.
6. The panels must be enlarged to include more socio-economics experts and representatives of businesses.
7. Procedures must be adapted to the specific nature of individual programmes and key actions.

[4] The Committee on the "Improving Human Potential" Programme covers all activities in the programme. The subcommittee on the same programme deals specifically with the key action "improving the socio-economic knowledge base" and coordination activities to take account of the socio-economic dimension in the fifth framework programme. The External Advisory Group deals specifically with the key action "improving the socio-economic knowledge base" and coordination activities to take account of the socio-economic dimension in the fifth framework programme.

8. Any gaps in the programmes as regards the socio-economic side of the projects must be identified so that greater account can be taken of this dimension in future activities.
9. Targeted activities must be launched to strengthen cooperation between researchers from different disciplines.

On the whole, the recommendations have largely been taken into account and put into action in the individual programmes. The recommendation that "targeted activities must be launched to strengthen cooperation between researchers from different disciplines" has been partly implemented by launching an accompanying measure and holding a workshop on interdisciplinarity. These activities must be continued and stepped up in 2001.

The only serious way to evaluate the impact of the recommendation on the "multidisciplinary approach" will be by systematic analysis of the achievements of the projects funded (an initial attempt could be made in the 2001 report).

No action could be taken on the recommendation about briefing scientific officers because of the extremely intense activity under the individual programmes in 2000, from negotiating the 1999 contracts to signing them, starting the first activities on the projects selected, amending the work programmes and documents for the calls for proposals, and evaluating the calls for 2000. This recommendation still applies and it should be possible to implement it in the future, particularly with the prospect of the forthcoming framework programme.

Finally, the recommendation on adapting procedures to the specific nature of individual programmes and key actions has not yet been implemented properly, because of the complex changes of procedure which it implies.

Action taken on integration of the socio-economic dimension

In varying degrees and forms, project selection procedures in all the programmes have been producing a better combination of scientific quality and of responding to socio-economic needs, particularly by forging stronger links with Community policies. The documentation on the programmes includes a wealth of information on the Community policies connected with the individual research topics (health, agriculture, environment, transport, energy, industry or information technologies).

Channels such as the Group of Directors and the "mini-teams" in the Quality of Life Programme allow constructive, fruitful exchanges of experience to take account of the concerns of the individual Directorates and research programmes. These arrangements have created stronger links with other Community policies.

In all the programmes one of the principal obstacles to integration of the socio-economic dimension is the difficulty for scientific communities to take a multidisciplinary approach from the proposal-drafting stage.

Generally, the individual programmes have given evaluators a clearer understanding of the relevance criterion "European added value". However, some evaluators seem to think that only the Commission is in a position to evaluate this criterion properly.

All in all, the different proposers and programmes have been taking fuller account of the impact on health and the environment than on employment and training.

The web sites opened (Information Society, Quality of Life, Energy/Environment) have allowed a fruitful dialogue with the scientific community and raised its awareness of the importance of taking account of the socio-economic dimension in their projects.

Overview of the projects identified as having a particularly strong socio-economic dimension

A particular effort was made to identify projects with a strong socio-economic dimension (see the annexes on the specific programmes for lists and descriptions).

The ***Quality of Life Programme*** includes 15 projects with a strong socio-economic dimension, covering the various key actions.
Two of these projects directly concern the food sector and cover such aspects as dissemination of the results of the research in this sector to SMEs and the effects of caffeine consumption.
One project on infectious diseases covers early diagnosis of a number of viral diseases in pigs (the socio-economic consequences of which were clearly demonstrated by the foot-and-mouth disease crisis).
Two of the projects cover the cell factory, one focusing on use of biosensors to detect environmental contamination by pesticides, the other on applications of nano-biotechnologies to yeasts in industrial, medical and agricultural processes.
Two of the projects are in the field of environment and health, one of them on the impact of road traffic and aircraft noise on child cognition and health, the other on assessment of health risks from exposure to organohalogens.
Three projects concern sustainable agriculture and rural development, particularly supporting and promoting tourism in rural areas, mutations and dynamics of periurban rural areas, and innovation, peripherality and the rural economy.
There are two projects on ageing, one of them on the health, working ability and well-being of ageing workers, the other on supporting health services policy and planning by identifying predictors of major risks of incapacity amongst elderly people.
The last four projects concern activities of a generic nature, namely rationing of medical services in Europe, the development of mathematical models for cervical cancer screening in Europe, the quality of life of children and adolescents with disabilities and, finally, strategies for animal breeding and raising.

The ***Competitive and Sustainable Growth Programme*** includes 15 projects with a strong socio-economic dimension, covering the various key actions.
Three projects under the key action innovative products, processes and organisation are focusing on a marking system to ensure the traceability of products from traditional sectors, waste water recycling in industry, and tunnel-building technologies.
Under the key action land transport and marine technologies one project is seeking to reduce CO_2 emissions from diesel engines. This key action takes the form of a series of clusters designed to take fuller account of the socio-economic dimension in the projects.

The key action new perspectives in aeronautics includes a project to reduce aircraft noise.
The generic activity materials has three projects, one on the development of biohybrids (including human cells), another on extending the life span of materials used in orthopedic implants and the third to develop molecular nano-structures by lithography.
The generic activity measurements and testing includes two anti-doping projects, one on use of isotope ratio mass spectrometry, the other on dissemination of anti-doping information.
Beyond that, four projects to meet more general needs have been selected in this programme, covering mutual recognition of measurement standards issued by national metrology institutes, initiation of a dialogue between European regulatory and metrology bodies, broad information for users on the measurement results provided by metrological institutions affecting the fiscal and tariff provisions, and, finally, a study on the interaction between standardisation and intellectual property.

The ***Information Society Technologies Programme*** includes 20 projects with a strong socio-economic dimension, covering the various key actions.
Under the key action systems and services for the citizen three projects stand out, one on services for telematic management of diabetic patients, another on sign language for deaf persons and the third on electronic voting systems.
The key action new methods of work and electronic commerce offers three projects covering the impact of new technologies on work and business, the interaction between family structures and new technologies, and possible ways of organising teleworking.
Under the key action multimedia content and tools six projects are focusing on the impact of IST on education and training at regional level, the impact of IST on the home education and training markets, the impact of IST on cultural heritage, use of IST for authoring and design, use of IST for literacy and reading, and on the definition of standards for multimedia content.
In the key action essential technologies and infrastructures there is a project on personalised services for digital television.
Under cross-programme action 7 (CP7) to enhance the socio-economic impact of the Information Society Technologies Programme, five projects stand out as particularly relevant. They cover construction of a model to explain and forecast the changing patterns of IST uptake and usage across Europe, commitment among companies to consider the societal aspects in their activities across national borders, take-up of best practice from the e-Europe initiative, techno-economic evaluation of new communication networks and services and, finally, the role of NGOs in facilitating social inclusion in the information society.
In the specific activity on future and emerging technologies two projects are looking into the interaction between industry and academia to develop innovative mathematical and computational tools and into establishment of a network to create channels of communication between mathematicians and industry in the South-eastern European countries.
The specific activity on improving human capital includes three projects. They consist of 5-day training courses for participants in projects in this programme who are interested in commercial application of their results, provision of tool-box solutions to the legal problems facing SMEs in the electronic commerce field, and training for 60 persons on image analysis and pattern recognition.

The ***Energy and Environment Programme*** includes 12 projects with a strong socio-economic dimension, covering the various key actions.
The key action global change, climate and biodiversity has two projects on tradable emission permits for greenhouse gases and on methods for measuring emissions of greenhouse gases.
Under the key action city of tomorrow and cultural heritage five projects are focusing on individual attitudes and consumer behaviour in urban households, citizens' willingness to pay for urban waste collection and treatment, methodologies for environmental impact assessments on urban development, standard guidelines for city planners, landowners and investors for contaminated sites, and car-sharing schemes in urban areas. There are also two clusters, one on urban transport planning, the other on sustainable buildings and neighbourhoods.
Two projects under the Sub-programme on Energy are particularly good examples, one to produce scenarios for using renewable energy sources in a network of European cities, the other on using experience curves for assessing the impact and cost-effectiveness of energy policy programmes.

The ***Improving Human Potential Programme*** includes 11 projects with a strong socio-economic dimension, covering the various key actions.
Three projects amongst the activities on access to research infrastructures are covering the application of information and communication technologies in the field of legal science, the establishment of Internet tools for exchanges of data in the field of economic and social sciences and the networking of eight separate social science infrastructure systems to smooth the way for integration of the candidate and non-EU countries.
Three projects amongst the activities on research training networks are designed to take fuller account of the socio-economic dimension. They concern interdisciplinary research on environmental policy instruments, complexity in social science and analysis of international capital markets.
The high-level scientific conferences included two significant events, one on interpretation of double taxation conventions, the other on the impact of the "knowledge-driven economy" concept on the economic, institutional and technological challenges which Europe must face.
STRATA (strategic analysis) activities include three projects of great importance for integrating the socio-economic dimension in the fifth framework programme. They are focusing on application of the precautionary principle, application of the concept of "intangibles" to analyse production of scientific knowledge, acquisition thereof by companies and the implications for science, technology and innovation policy, and the impact of the concept of the knowledge-based society on the role played by science and technology policies as promoters of innovation and growth.

The ***International Cooperation Programme*** includes 7 projects with a strong socio-economic dimension, covering the various key actions.
They are dealing with the interactions between environment policy, social challenges and technological innovation in three European and three Asian countries; assessing the quality of care in pregnancy and childbirth in three African countries; reconciling socio-economic needs with sustainable development of semi-arid lands; public-private partnership for tuberculosis control; elaboration of the concept of multicultural autonomy in six Latin American countries; promotion of renewable energies in Asia; and the introduction and use of electronic distance training for officials from African governments.

Recommendations from other monitoring exercises and assessments and follow-up measures taken

An overview of the recommendations made in the various monitoring exercises and assessments is annexed to this summary.

Five-year assessment

Closer cooperation between the coordination team and the scientific officers for each programme has allowed clearer definition of the content of the work programmes to put greater emphasis on integrating the socio-economic dimension in them, clarified interpretation of the evaluation criteria - although the criterion "European value added" is still posing problems for evaluators - and, finally, made it possible to include socio-economics experts on the evaluation panels. In the 2001 report it should be possible to publish a table comparing the percentage of socio-economists participating in the evaluations.

Mid-term review

Publication of the 1999 annual report and of the "Map for the socio-economic dimension in the 5th FP" has led to closer relations with the scientific community with a view to taking account of the socio-economic dimension (2nd recommendation). Discussions in the mini-teams have provided a means of taking greater account of the research needs of other EU policies when evaluating proposals (4th recommendation). Closer collaboration with the persons responsible for the key actions has opened the way for new socio-economics experts to participate in the database and these efforts must be continued (7th recommendation).

1999 IHP monitoring report

The evaluation panel emphasised that coordination and integration of interdisciplinarity was a major challenge for the fifth framework programme. As regards cooperation with the different key actions, the point to emphasise is that the interest shown by the partners and the open, effective collaboration between them allow a better understanding and fuller account of the socio-economic dimension in the working documents and in the activities, particularly in the evaluations of projects.

2000 IHP monitoring report

The broad prospects opened up by the annual report on the socio-economic dimension in the fifth framework programme should lead to reinforcement of the coordination team to create the right conditions for it to attain the objectives which it has been set.

Recommendations by the Subcommittee on Improving Human Potential in 2001

The Subcommittee recommended that the 2001 report should include a socio-economic analysis of the results of the projects under the various key actions. It called for a closer definition of "socio-economic dimension".

Recommendations for 2001

The concept of the "socio-economic dimension" in the framework programme remains to be defined. Various lines of approach are possible:

1. Consider the "socio-economic dimension" in the research programmes as the proposers' capacity to answer the questions facing European society (and, therefore, linked to the social, cultural and economic concerns of citizens and decision-makers).
2. Consider the "socio-economic dimension" as an interdisciplinary approach adding an economic or social dimension to the research projects (issues concerning placing on the market, the transition from invention to innovation and then industrialisation, studies on the acceptability of a new concept or product, etc.). This second approach necessarily entails including human and social sciences teams in the projects plus one or more specific workpackages.
3. Consider the "socio-economic dimension" as an "effect" or a conclusion from post-analysis of the results produced by the projects. This should lead to more active support and follow-up of projects to take up the results and open them up for further research.
4. Consider the "socio-economic dimension" as the contribution made by human and social sciences to a better understanding of the phenomena governing change in European society, particularly those related to scientific and technological progress.

These approaches place greater emphasis either on the political aspect of the concept "socio-economic dimension" (fuller analysis of the impact) or on the more scientific side (greater integration into the projects).

It must be remembered that for many years the evaluation exercises for the framework programme have been stressing the importance of introducing tools to measure the impact of the projects. Some such exercises are under way and should provide fuel for thought on the methods. These recommendations could be put into action in the form of accompanying measures bringing together groups of experts and scientific officers in the Commission so that they could jointly define a few simple, clear indicators and criteria for identifying current trends and prospects for the future (by building hypotheses and trends scenarios).

The current efforts in the Quality of Life, Information Society and Energy/Environment programmes to raise awareness amongst scientific officers and the scientific community (websites, specific socio-economic evaluations or communication on sustainable development) could provide inspiration for all programmes. Exchanges of experience with the scientific officers responsible for the various programmes and key actions should be organised before the next calls for proposals are published to ensure wider dissemination of "best practice".

Fuller information on the results of the research conducted under the key action "improving the socio-economic knowledge base" is required by the other programmes to allow closer

coordination of research in this field which also directly concerns certain key actions in other programmes.

One field in which it is still difficult to assess integration is employment. Further efforts must be made to identify a few relevant indicators giving a better idea of the impact of the research projects in this field. It could be considered that such an evaluation of research projects is possible only *a posteriori* and that the results are not perceptible until after industrial application of the research findings (i.e. at least five years after the end of the project).

In the future greater attention should be paid to education and training. Research projects should be more forward-looking about staff training so that the results of the research can be put into action in the industrial application phase. In this context, the contribution made by socio-economists should allow faster industrial application by projecting and anticipating the needs for training and new job profiles.

The efforts to coordinate Community policies and research projects must be continued and stepped up, both by concertation with other Directorates-General and with the aid of the information supplied to the scientific community (information packs, briefing sessions, etc.).

The projects identified as having a particularly strong socio-economic dimension (see the annex on the specific programmes) should be monitored particularly attentively throughout 2001 to learn the relevant lessons and apply them amongst the scientific community.

A cross-programme analysis should be conducted in the next (2001) report to identify selected, sensitive issues such as food safety or measures to monitor the environment policy agreed at Kyoto.

A statistical analysis of the proposals selected from the 1999, 2000 and 2001 calls for proposals should be conducted in the 2001 report to show the disciplines represented in the multidisciplinary projects and the numbers and types of laboratories and socio-economics researchers working on them.

The "Map of the socio-economic dimension in the 5th framework programme 2001-2002" will be put on the Directorate's website by the summer of 2001.

A series of awareness-raising sessions on the importance of taking account of the socio-economic dimension in research programmes and projects could be organised before publication of the final calls for proposals under the fifth framework programme, targeted on the scientific officers responsible for the various programmes (particularly new officers).

The coordination team should play a more pro-active role in 2001 (recommendation of 2 May 2001 by the Subcommittee on Improving Human Potential), particularly in organising workshops on subjects with a bearing on integration of the socio-economic dimension.

	RECOMMENDATIONS IN THE MONITORING REPORTS AND ASSESSMENTS ON COORDINATION OF THE SOCIO-ECONOMIC DIMENSION
Five-year assessment	Socio-economic research under the thematic programmes is a welcome new initiative in FP5 and it is coherent with the overall problem-solving approach and the complementary role of horizontal research within IHP. Activities in the first year of operation have been limited to an *ex-post* tracking mechanism which should give way to a more pro-active and collaborative mechanism in the coming years. However, this requires considerable methodological development both in terms of the specification of the work programmes, the specification of the evaluation criteria and the setting-up of multi-disciplinary evaluation panels. Hence the coordination unit in DG Research should be strengthened to accomplish this task and harmonise approaches across thematic programmes.
Mid-term review	Guidelines 2000-2002: 1) maintain the approach based on resolving economic and social problems; 2) intensify the socio-economic components of the programmes and their interrelationships, in particular on the basis of the annual report on the socio-economic dimension of the framework programme; 3) introduce a degree of flexibility in the criteria for evaluating the relevance of projects according to the different programmes and action lines; 4) take greater account of the research needs of other EU policies when evaluating proposals; 5) encourage the integration of the research dimension into those other policies; 6) continue to encourage the increase in project size, possibly by indicating minimum reference thresholds; 7) maintain the evaluation procedure while encouraging the participation of competent experts and more women on the list of voluntary evaluators.
External monitoring report IHP 1999	The 1998 TSER Monitoring Panel expressed concern about the integration of socio-economic research activities across the different thematic programmes and its effective monitoring. The FP5 has fully assumed the need to integrate and coordinate those activities and a managing unit made up of one adviser and three scientific officers has been set up. Its main task during 1999 has been the preparation of an annual report on the integration issue for the Council and Parliament. A "map of the socio-economic dimensions in FP5" has been prepared as an information device and a permanent group with correspondents from the specific programmes has been set up. Interdisciplinary integration of socio-economic analysis with technology impact assessment remains a crucial task, as well as the capability to give advice to the specific programmes on how to deal with their socio-economic aspects. Success of this enormous task will depend on the degree of effective cooperation reached. This issue should be closely examined in future.
Monitoring report 2000	Two staff members produce the Annual Report on the Socio-economic Dimension of Europe. Greater investment of staff time in this area would seem justified.
Subcommittee recommendations 2/5/01	Guidelines 2000-2002: 1) maintain the approach based on resolving economic and social problems; 2) intensify the socio-economic components of the programmes and their interrelationships, in particular on the basis of the annual report on the socio-economic dimension of the framework programme; 3) introduce a degree of flexibility in the criteria for evaluating the relevance of projects according to the different programmes and action lines; 4) take greater account of the research needs of other EU policies when evaluating proposals; 5) encourage the integration of the research dimension into those other policies; 6) continue to encourage the increase in project size, possibly by indicating minimum reference thresholds; 7) maintain the evaluation procedure while encouraging the participation of competent experts and more women on the list of voluntary evaluators.

1. INTRODUCTION

Technological change and society shape one another in an intimate symbiotic manner; the technical and the social are bound together in a process of mutual influence. New technologies such as biotechnology, information and communication technologies and genetics drive and are driven by major social changes. Employment and social inclusion, the protection of the environment and natural resources, energy production, transport safety, food safety, and the needs of an ageing population are only few of the areas in which the complexity of the relationship between technological innovation, social processes and social needs becomes manifest. Given the diversity and the constant evolution of European societies, the task of mastering this complexity is a moving target. It requires the successful **integration** of high-quality scientific and technological research with an equally advanced understanding of the social processes taking place in European societies as well as worldwide. Interdisciplinary co-operation and multidisciplinary understanding are indispensable in this effort.

Two important points should be mentioned related to the development of a European Research Area.

First, the generalisation of the use of the Information Society concept is obvious today. The industrial issue is fundamental, The Lisbon Summit conclusions recognised this pervasive character of ICTs and demanded appropriate actions and policies at a European level. Europe already plays a key role, but the efforts must be continued and reinforced to ensure the acquired positions. Research on Information Society is therefore from this point of view an essential lever, bearing in mind that the industrial aspects and the economic and social needs are articulated. Better knowledge on societal issues allows better acceptability of the changes in the organisation of work and Society as a whole.

The question of the Governance and of specific methods of governance in Europe, opens a new fundamental issue for research. It makes it possible to articulate scientific and technical policies with other public policies. Socio-economic dimension and socio-economic research, if they are incorporated in scientific or technical research projects, contribute to a better integration and acceptation by European Society for the implementation of public policies. In this process, interdisciplinary work is necessary and combined expertise required.

The Fifth Framework Programme has been designed to respond to some major socio-economic challenges facing the European Union. Breaking away from past tradition, it adopts a problem-oriented approach and is structured along challenges (rather than along disciplines), in the form of key-actions, concentrating the available resources on carefully targeted priorities.

In this context, the socio-economic dimension has acquired a particular importance in both the design and implementation of the technological research activities financed under the different specific programmes and key-actions comprising FP5. It constitutes one of the main elements of the philosophy of the framework programme as Community research is geared mostly towards the needs of society.

To what extent have the specific programmes tailored their activities to fit this philosophy of socio-economic dimension underlying FP5? What does the *socio-economic dimension* mean within individual specific programmes? How and to what extent is it reflected in their key-

actions and action-lines? Can this be improved and in what way? How is the socio-economic dimension interpreted by the research community and how is it reflected at the level of research proposals? How has this approach favoured interdisciplinary and multidisciplinary proposals? Has socio-economic research been integrated in the conception, design and implementation of research, or does it remain a side activity? How is the evaluation of these more complex proposals organised? These are some of the questions to which this report attempts to provide an answer.

Defining the socio-economic dimension in more concrete terms depends on the specificities of the areas covered by each specific programme and is not an easy exercise. The diversity of the issues involved within each specific programme, the constant evolution of societal needs, and the plethora of approaches to technology within the social sciences, makes the detailed discussion of the socio-economic dimension in the activities of specific programmes look like a moving target. As this report registers, the socio-economic dimension is understood differently both across, as well as within, specific programmes, and there remains a certain degree of ambiguity.

Therefore, it should be underlined that a "standard" definition of the socio-economic dimension that would apply across specific programmes is problematic and rather counter-productive.

In this context, one cannot pretend to have the answers on how to best integrate the socio-economic dimension in the specific programmes. However, there is an intrinsic value in the discussion on the integration of a socio-economic dimension in the specific programmes, as a creative interaction between technological and social scientific expertise can provide useful input to the policy-making process. This interaction is considered to be a necessary condition for the achievement of the objectives of the Fifth Framework Programme.
It is not the purpose of this report to provide a narrow definition of the "socio-economic dimension". Rather, its purpose is to continue stimulating the debate over the complex interrelationship between technology and society in a way that is constructive for the successful implementation of the Fifth Framework Programme.

The report shows that the interpretation and the integration of a socio-economic dimension and of socio-economic research varies considerably in the various parts of FP5. Significant differences exist across as well as within individual specific programmes.

The report has the following parts:

- a summary account of how the socio-economic dimension has been taken into account in the specific programmes in the year 2000
- annexes providing a more detailed presentation of the socio-economic content of each specific programme (provided by the respective programmes)
- a set of general conclusions in relation to the integration of the socio-economic dimension in the specific programmes
- a set of general recommendations for the improvement of this integration in the future.

2. THE CONTEXT IN 2000

In the year 2000, the context presented in the first report was improved and strengthened. The European citizens' concerns, as those of decision-makers', with regard to the problems due to the technological hazard and in the decision processes' transparency were expressed with strength and led often to radical measures (BSE, GMO, maritime pollution, climate etc.).

More than ever the questions emerging in the relations between technology and society are topical, as well as the contribution of the humanities and social sciences to natural and industrial sciences research. Better knowledge of the social processes and their integration in more technologically focused projects make it possible often to avoid a priori discussions or even rejection.

This process can only be progressive and must be appreciated in the long term. Improvements occurs slowly and with difficulty because one should make mentalities, practices or even beliefs evolve, to enter a new logic of complexity and relativity (one of the improvements outstanding of this last year is that of the application of the precaution principle). This of course cannot be carried out to the detriment of scientific quality.

The spirit of the Fifth Framework Programme as well as that of the Communication "Towards a European Research Area" are strong points on which programmes relay to incorporate this new approach into the activities.

The recommendations of the1999 report included the following:

- That the socio-economic aspects should not be confined in certain key actions only but had to be included in all the programmes and all key actions;
- That all the working documents of the specific programmes (guides for proposers, guide for evaluators), should clarify what has to be the socio-economic dimension in the proposals, including the importance attached to interdisciplinarity;
- That an important information and awareness-raising activity of all research actors should be developed, including symposia, workshops on interdisciplinarity, meetings of researchers from various complementary projects, valorisation of finished research but also of current research;
- That proposal's evaluation panels to socio-economist appraisers should be enlarged to include experts with socio-economic expertise.

Several of these points were taken seriously into account, by the specific programmes, in the implementation of the 2000 activities, although not all objectives were reached. For example, significant progress was made, in relation to the briefings of evaluators on specific Community policies; in the importance attached to the relevant criteria in the evaluation of proposals, in the development of more activities targeting interdisciplinarity, in the participation of evaluators with socio-economic expertise in the proposal evaluation panels.

It remains that a number of questions raised in the first (1999) report have not yet found their answer:

- To what extent have the specific programmes tailored their activities to fit this philosophy of socio-economic dimension underlying the FP5?
- What does the socio-economic dimension mean within each specific programme?
- How and to what extent is it reflected in their key-actions and action-lines ? Can this be improved and in what way?
- How is the socio-economic dimension interpreted by the research community and how is it reflected at the level of research proposals?
- How has this approach favoured interdisciplinary and multidisciplinary proposals?
- Has socio-economic research been integrated in the conception, design and implementation of research, or does it remain a side activity?
- How is the evaluation of these more complex proposals organised?

The Beyond factual presentation of evaluation's results and activities of the specific programmes, the 2000 report includes a more critical dimension which is a result of both the contributions of the respective programmes and the reflection of the co-ordination team of the human potential programme. In addition to this more qualitative perspective, the 2000 report has looked into the activities of all key actions of the respective programmes while the 1999 report has looked into only one key action per specific programme.

The integration of the socio-economic dimension in the research activity of its specific programmes is a main objective of the FP5.

In the decision for the adoption of FP5, the Commission assigned the Human Potential programme the task of developing a suitable co-ordination mechanism for the "...integration of socio-economic and strategic dimension in the research activities of the specific programmes"[5]. This report is a result of this mandate and provides a picture of the situation in 2000.

[5] Decision 182/99/EC, OJCE/L26-1/2/99, p. 27.

3. THE SPECIFIC PROGRAMMES IN 2000

The programmes have a great potential to integrate socio-economic dimension and socio-economic research in their activities. Both are reflected in their work-programmes.

In a broader sense the socio-economic dimension becomes visible in the innovative approach of the programmes to tackle scientific and technological questions relevant to society by

- looking at strategic problems
- promoting multisectoral research
- promoting multidisciplinary research
- guaranteeing a Europe-wide impact
- involving all stakeholders concerned.

3. 1. THEMATIC PROGRAMME ON *QUALITY OF LIFE*

The Quality of Life work-programme is built around six specific key-actions, targeted towards more immediate policy objectives of improving the competitiveness of European industry and enhancing the quality of life of the EU citizen. The key-actions focus on market needs, but at the same time consider the immediate socio-economic needs, in the areas that will be developed by this Programme. Thus in general, the appropriate importance to socio-economic research is given in the objectives of all research activities. The needs of society are taken into consideration and integrated in most of the key actions in a satisfactory way. Furthermore, the socio-economic dimension is one of the evaluation criteria for the selection of the future research projects.

A unique characteristic of key actions is an ability to address to the common needs of cross-linked Community policy objectives such as those in agriculture and fisheries, industry, environment, and in the field of health.

The capacity of key actions to meet emerging socio-economic challenges will depend in part on the extent to which, from the start of the programme, the potential synergies between different projects can be recognised and promoted. In order to ensure this, proposals will be invited from appropriate disciplines in the social sciences to catalyse the links between the Life Sciences and society.

In addition to the six Key actions, the programme will support generic activities with the aim of building up the knowledge base in identified areas of strategic importance for the future. These areas include research in relation to genomes, the science of the brain, public health, chronic diseases, and socio-economic and ethical issues surrounding bio-sciences.

Supporting the Key actions and generic activities, and intrinsic to the programme, are activities such as support for infrastructures, dissemination and exploitation of results, and training opportunities. Entrepreneurship and participation of small and medium enterprises will be encouraged.

3.1.1. The Key actions

Key action 1: ***Food, Nutrition and Health***

In general the socio-economic aspects and the links with common policies were already well underlined in the work programme and the response was satisfactory in terms of proposals having a relevant socio-economic aspect.

Key action 2: ***Infectious Diseases***

Research efforts concentrated on the development and exploitation of new concepts and techniques for the treatment of, and protection against, human and animal infectious diseases.

In line with the relevant Council Resolution, particular attention has been paid to the uprising health problem of microbial pathogen resistance to antibiotics.

Research on infectious diseases in animals for livestock production and aquacultured species is meant to provide scientific and technical basis in support of Community veterinary legislation and public health measures. This is particularly true in relation to diseases included in list A of "Office International des Epizooties", those subject to Community eradication programmes and zoonoses.
In view of the new Framework programme for RTD (2002-2006), the Commission suggested a broader approach to be pursued with regard to combating infectious diseases at EU and international level. In the proposal of the Commission, the actions envisaged under the first thematic area focus on three poverty-linked infectious diseases, namely, AIDS, malaria and turbecolosis.

Key action 3: ***The Cell Factory***

It was made clear that the projects must combine excellent science and convincing exploitation strategies. More emphasis was given to measures to further stimulate entrepreneurship: in particular, pan-European initiatives to network biovalleys or bioincubators, strengthen biotechnology entrepreneurship, connect bio-entrepreneurs with investors, encourage research partnerships and interactions between biotechnology firms towards consolidation, link biotechnology research with clinical practice, and analyse GMO safety research and make information broadly accessible. Towards these objectives, the applicants were invited to focus on the "Thematic networks" or "Accompanying measures" implementation modalities.

Key action 4: ***Environment and Health***

The Environment and Health Key Action has socio-economic issues at its centre. Public concerns about environment and the use of technologies and their possible impact on health were clearly outlined in the Work Programme for 1999 and gave rise to the selection of 25 socially relevant research projects in the May 2000 evaluations.

Key action 5: ***Sustainable Agriculture, Fisheries and Forestry, and integrated Development of Rural Areas including Mountain Areas.***

The scope, objectives and thematic content of key action 5 is heavily driven by socio-economic considerations which are related to evolving community policies such as the Common Agricultural Policy, the Common Fisheries Policy, ongoing community forestry measures, policy on the environment and aspects of consumer safety. The central concept around which key action 5 is realised, is the concept of sustainability and sustainable development, itself a major socio-economic issue with far reaching environmental, industrial and economic implications. It is emphasised that key action 5 maintains 2 action lines specifically addressing issues of socio-economic nature namely, action line 5.4 "Support for Common Policies" and 5.5 "New tools and models for the integrated and sustainable development of rural and other relevant areas".

Key action 6: *The Ageing Population and Disabilities*

The second call for proposals for the key action was the main activity for 2000. Following evaluation, 32 projects were selected for funding, requesting an EU contribution about € 39 million.

The results of this second call were encouraging for the ultimate success of this key action. They reflected changes made to the work programme on the basis of the outcome of the first call: notably over-subscription was better controlled; there was a better balance both between sectors, with greater emphasis on the care of older people, and between funding modalities, with co-ordination projects representing one quarter of the total; the problem-solving content was up; and there was more user involvement and greater support for policy and planning.

In the year 2000, the key action management also launched, in co-operation with the key action's External Advisory Group, a series of exploratory workshops aimed at stimulating pan-European co-operation in a number of topics where it is considered to be weak. The topics included end-of-life care, increasing the participation of older people in society, older people's mobility and living at home, and improving postural stability and preventing falls. The workshops brought together the research community with stakeholders in the research, notably the users and beneficiaries of research, especially older people themselves and their carers.

The key action also launched the Forum on Research Management in the field of Population Ageing with the participation of research managers from national funding agencies. During 2001, the Forum will establish a web-site to act as a portal to national and international activities. The Forum will also organise a number of workshops targeted at promoting the networking of national activities on specific priority topics in the field.

Promoting multisectoral and multidisciplinary research on ageing remains a high priority in the proposal of the European Commission for the new Framework Programme for RTD activities (2002-2006). Actions are envisaged under the first thematic area of the Commission's proposal.

3.1.2. Other activities

As outlined in last year report on "socio-economic dimension in *FP5*, the *QoL* programme despite having given the highest priority to socio-economic concerns was not fully successful. Indeed while overall the programme staff reacted pro-actively on this priority the message was only partially absorbed by concerned constituencies. This was basically due to communication problems: on one hand *R&D* scientists would not fully grasp the message and on the other hand they had difficulties to interact with socio-economic experts and other concerned parties. To counteract these 2 obstacles the *QoL* programme has:

* Improved the clarity of information documentation (including the info-pack) for applicants but also for the evaluators;

  A number of modifications and adaptation, as you will see in detail in the next few pages, have been introduced in the call for proposals and info-pack. Also, several amendments have been introduced to improve the evaluation process as a result of recommendations made by independent observers and of practical experience from the past exercises. The *Vademecum* was brought in line with the Annex H of the Manual of Proposal Evaluation Procedures for the Fifth Framework Programme that was adopted in March 2000.

* Launched a Bio-society web site.
  The Bio-society web site (http://Biosociety.dms.it) was launched to stimulate exchanges of ideas between bio-technological researchers and socio-economic experts. The constructive interactions between these two categories of "thinkers" are bound to clarify the issues at stake and proactively orient the policy debate as well as providing useful information for the public opinion.

Since it first implementation, in February 2000, the Bio-society web site has been consulted over 4000 times, it gives a great contribution to disseminate useful appropriate information as the following:

* Information on the socio-economic dimension of the QoL Programme ;
* A directory of 160 socio-economic experts involved with the impact of new technologies ;
* A catalogue of projects (*FP4*) of more particular relevance to socio-economic dimension ;
* A list of ongoing projects financed under *FP5*;
* The most recent *EU* legislation on bio-technologies ;
* A Bio-glossary of more than 800 technical-scientific biotechnology related terms ;
* Information to proposers to help them to fully cover socio-economic aspects in *R&D* proposals ;
* A bio-forum to stimulate public debates;
* In addition all those who are interested can receive on a regular basis (normally bimonthly) an updated e-mail with all the news and recent documents that are continuously added to the site content. Some 300 R&D scientists, socio-economic researchers, industrialists, policy makers and representatives of society are presently taking advantage of this service.

3.2. THEMATIC PROGRAMME ON *COMPETITIVE AND SUSTAINABLE GROWTH*

The competitive and Sustainable Growth work programme is clearly oriented towards the need to develop RTD&D activities in support of policy-making, industrial and related service sectors in order to meet challenges for the new millennium and generate a strategic vision of research in all sectors throughout Europe.

The structure of the programme is composed of three elements, namely a sets of key actions, generic technologies, and support to research infrastructures.

The four key actions are oriented to solve clearly identified socio-economic problems by developing critical technologies or methodologies and clustering, when appropriate, small and large research and demonstration projects of industrial, basic, policy-driven or applied nature around specific and strategic common challenges:

- Key action 1: Innovative products, processes and organisation
- Key action 2: Sustainable mobility and intermodality
- Key action 3: Land transport and marine technologies
- Key action 4: New perspectives in aeronautics

These actions combine efforts in various research areas (e.g. materials, chemistry, physics, application of information technologies, clean technologies, human factors, socio-economic research, as well as training or accompanying measures) in order to achieve their objectives.

RTD on generic technologies helping to develop the scientific and technological base as well as qualified human capital in critical areas, and giving support to innovation across a range of applications:

- materials and their production and transformation
- new materials and production technologies in the steel field
- measurements and testing

Support for the more efficient utilisation of existing research infrastructures to provide an attractive networked environment in the fields covered by this programme.
Activities will be integrated and co-ordinated as necessary, within and between the different key and generic actions as well as with other programmes of FP5, with the JRC and with national programmes. This should provide mechanisms by which stakeholders including industry, public authorities and the research community can work jointly in response to common strategic problems.

Particular importance has been given to the integration, validation, demonstration and assessment of previous project results top facilitate transport policy decision-making and implementation at European, national and local levels.

Concentration if a substantial fraction of the key action activities around a core set of Targeted Actions which are designed to facilitate the emergence of solutions with a measurable impact, high profile and direct relevance to EU policy objectives. Targeted Actions integrate multidisciplinary and multisectoral activities involving, wherever possible, private-public sector partnerships and end-users from the business, industrial and policy-making sectors;

Identification of a limited number of priorities of strategic importance to the EU, which are to be addressed by proposals related to the topics of the Work Programme.

3.2.1.The work programme and its key actions

Key action 1: ***Innovative Products, Processes and Organisation***

Socio-economic objectives of this key action are closely related to support to industry competitiveness, in particular by contributing to sustainable development through reduction of material content of products whilst increasing their service value, and through innovative, safer, cleaner and low natural resource intensity processes and products-services. Also new methods of organising production, service and logistics should be sought that reduce costs, time-to-market, lead time, and make improved used of human resources.
The 1999 revision of the work programme for this key action mainly concerned a redefinition and re-focusing of Targeted Research Actions (TRAs) with the objectives of modernising industry, improving quality and minimising the use of resources. The December 1999 periodic call was open to TRA "machines", "extended enterprise", "modern factory" and "infrastructure". A large SME participation was and is still encouraged, e.g. through participation in user groups.

Key action 2: ***Sustainable Mobility and Intermodality***

This key action is largely policy-driven and implies a direct involvement of policy-makers from Member States. The key challenge is how to reconcile the increased demand for transport on the one hand and the need to reduce its impact on the physical, social and human environment on the other hand, and how to reduce the transport intensity of economic growth. This key action offers the opportunity to involve all stakeholders in facing this challenge and in enhancing innovation in the transport sector by fostering the use of new technologies, developing new services, and providing new concepts and policies.

No significant changes were considered in the 1999 revision of the work programme. Within the December 1999 call, priority has been given to the following thematic networks: (1) For socio-economic scenarios: Trans-Alpine crossing, and implementation of marginal costs pricing in transport; (2) For infrastructures and their interfaces with transport means and systems: attention was paid to airport activities; and (3) For modal and intermodal transport management systems: focus was made on networking activities related to air traffic management (ATM).

With respect to RTD projects, priorities included: under the objective (1), socio-economic impacts of transport investment and policies, and implementation of marginal costs pricing in transport; under the objective (2), railway infrastructure capacity and access management tools, road pavement maintenance management, environment friendly shipping operations, new generation vehicles and propulsion systems, safety in tunnels, drivers and riders physical fitness and physical state, assessment of in-vehicle technologies and human-machine interaction for road transport; and education and training for revitalisation of railways; under the objective (3), assessment of ship and short traffic management and information system (VTMIS), the integration of airfreight in the intermodal transport chain, and door-to-door services for non-unitised cargoes.

Key action 3: ***Land Transport and Marine Technologies***

The strategic aim of this key action is to develop the technological infrastructure for the supply of future means and concepts. The overall objective is to support the expected growth in transport demands in a sustainable manner (covering urban, inter-urban and marine environments) and to maintain and consolidate the competitive position of the European road, waterborne-based, rail and intermodal supply industries. Measurable benefits to be brought by this key action are also linked to significant reductions in energy consumption and large increases in overall safety, reliability and availability. The objective should also be to prove commercial viability of technological solutions for a customer acceptable and integrated European transport system.

No significant changes were considered in the 1999 revision of the work programme for this key action.

Key action 4: ***New Perspectives in Aeronautics***

Air transport is experiencing a remarkable growth and is expected to maintain and even increase growth rates over the following decades. More than ever, it will be indispensable to respond to public demands for economical vehicles, with an optimum level of safety and environmental friendliness in relation to noise and pollution emissions. Europe's ability to provide answers to these challenges depends strongly on the level of its technologies and their incorporation by industry into products. The aim of this key action is to strengthen the competitiveness of the European aeronautic industry, including SMEs, while ensuring sustainable growth of air transportation with regard to environmental and safety issues.

No significant changes were considered in the 1999 revision of the work programme for this key action.

Generic activity 1A: ***Materials and their Technologies for Production and Transformation***

This generic activity addresses medium and long-term generic research which are related to material properties and performance, including for natural materials, as well as materials production and transformation. The main objectives are to support advanced materials applications needed for improved quality of life, develop sustainable materials production and transformation technologies, and improve safety and reliability.

No significant changes were considered in the 1999 revision of the work programme for this generic activity. The December 1999 call was open to all research objectives. Among proposals of comparable merit, preference has been given to RTD projects, Thematic Networks (e.g. for clustering of projects) and Concerted Actions aiming at long-term generic and multisectoral aspects around the generic activity's research objectives, and short to medium term objectives related to the research objectives of Key actions 1, 3 and 4.

Generic activity 1B: ***New and Improved Materials and Production Technologies in the Steel Field***

In view of the expiry of the ECSC Treaty in 2002, and the conclusions of the Amsterdam European Council (June 1997), there is an urgent need to speed up the progressive insertion of coal and steel research into the framework programme. The objective of the generic activity is to reduce costs, improve user satisfaction, and increase added value, to the benefit of both the iron and steel industry and suppliers, end users and other research partners.

Similarly to the materials generic activity, no significant changes were considered in the 1999 revision of the work programme for this generic activity. The December 1999 call was open to all research objectives.

Generic activity 2: ***Measurements and Testing***

The generic activity supports pre-normative research and technical work required for standardisation, in particular focus is made on the development and validation of testing methods and the production of scientific and technical data needed to define performance, reliability and safety requirements for products and services.

Research is also carried out to develop certified reference materials needed in support of Community policies, in particular for the implementation of directives. Another objective concerns the fight against fraud, in order to facilitate the implementation of EU policies i.e. the development of measurement and testing methods that are needed in order to detect and prevent fraud and to protect the economic interests of enterprises and society and the health and safety of citizens. Finally, a third objective concentrates on improvement of quality, e.g. methodologies to measure the quality of industrial products and services. This activity supports the overall objectives of the Growth programme. Furthermore, it gives also support to other parts of the Framework Programme.

No significant changes were considered in the 1999 revision of the work programme for this generic activity. The December 1999 call was open for the objective 6.1 "Instrumentation" only. Among proposals of comparable merit, preference has been given to those related to the fight against fraud.

3.2.2. Accompanying Measures

Accompanying measures are activities contributing to the effective implementation of programme and to the preparation of future activities. Among the five types of measures considered by the Growth Programme, two are particularly relevant to socio-economic objectives, namely:

Measure 1. Studies contributing to implementation of key actions, generic activities or support for research infrastructures: Proposals consist of studies aimed at supporting the implementation of one or more activities of the programme (e.g. adaptation of objectives and priorities, impact assessment, project/programme management methodologies, co-ordination with Member State's research activities, etc.). The proposed actions have hence to be "tailor-made" to the objectives of the programme or the specific Key/Generic activity. The integration of socio-economic research in RTD project proposals is encouraged where appropriate to complement or support technical research.

Measure 2. Studies in preparation of future activities: Proposals should address, with a European perspective, broad cross-cutting RTD policy issues related to industrial competitiveness and sustainable growth or focus on important specific socio-economic problems/needs, emerging technologies, technological systems, industrial sectors, or changing techno-industrial clusters. They should also include, as appropriate, a combination of the following: socio-economic challenges and opportunities, driving forces and directions of change, short/medium/long term goals for technological innovation, technological bottlenecks and research roadmaps, prospective assessment of the impacts of new technologies, comparative assessment of European capabilities, needs and opportunities for European and international RTD co-operation, technical and non-technical barriers to technology deployment, and implications for European RTD and other policies.

Similarly to Measure 1, proposals covered by the Measure 2 consist of studies. While Measure 1 studies are in support of the implementation of the current programme, Measure 2 proposals should provide input useful for the design of future EU RTD actions, beyond the 5th Framework Programme, which would support industrial competitiveness and sustainable growth in Europe.

3.3. THEMATIC PROGRAMME ON *INFORMATION SOCIETY TECHNOLOGIES* (IST)

3.3.1. Introduction

The socio-economic dimension is addressed in many of the activities supported by the IST Programme. Most of its key-actions and action-lines are geared towards the development of technologies, applications and infrastructures that are expected to contribute to the achievement of socio-economic objectives.

The degree of integration of the socio-economic dimension and of socio-economic research is variable across the different parts of the IST Programme. Overall, the Programme shows that the integration of a socio-economic dimension in its research activity can provide conceptual and practical support towards the achievement of its technological priorities and policy objectives.

The IST Programme supports EU policies, notably in employment, social cohesion and competitiveness; in fostering the convergence of information processing, communications and media, and in ensuring interoperability and coherence at a global level. The Specific Programme therefore foresees "*close articulation between research and policies needed for a coherent and inclusive Information Society*".

Many priorities and key issues addressed in the *eEurope* initiative and in the conclusions of the Lisbon Summit are addressed by the IST work programme, notably through Cross-programme Action 7 "Socio-Economic analysis for the information society" launched in 2000 and through Cross-programme Action 8 "Statistical tools, methods, indicators & applications for the Information Society" re-launched in 2000.

The IST work programme for the year 2000 was structured along four key-actions complemented by a number of other activities such as *Cross-Programme Themes, Future and Emerging Technologies, Research Networking, IST Support Activities* (for more details see Annex IST).

A "map" of the IST work programme for the year 2000 and its explicit references to socio-economic objectives (produced by the Human Potential Programme) can be found under ftp://ftp4.cordis.lu/pub/improving/docs/g_ser_map.pdf

3.3.2. IST calls for proposals in late 1999 and in the year 2000

The second IST call for proposals was evaluated in February 2000 (it was based on the IST work programme 1999). A total of 1140 proposals were received and 249 proposals were selected for negotiation. These included 17 proposals specifically concerned with socio-economic research and aimed at assessing and validating the implications of research for the Information Society. Examples are market studies of specific sectors and their expected dynamics. These proposals were submitted under the Action Lines devoted to socio-economic aspects spanning action of the Key Actions. The proposed EU contribution to these projects was 14 M Euro, which represents 3.4% of the budget for the second call.

The third IST call for proposals was evaluated in June 2000 with the assistance of 359 external experts. A total of 691 proposals were received.

The fourth IST call for proposals was launched in July 2000 and evaluated in November/December 2000. A total of 1011 proposals were received and 273 were retained for negotiations.

3.3.2.1. Key action 1: *Systems and Services for the Citizen.*

This key action has attracted 651 proposals in total as a result of the second, third and fourth IST calls.

The socio-economic dimension is clear in most KA I proposals since the overall objective of the key action is to contribute to the quality of life of citizens in Europe. In the year 2000, KA I focused on the design, development and demonstration of "intelligent environments" for general interest areas, including patients and health professionals, citizens with specific impairments, users of government services, citizens concerned with improved environmental quality, citizens concerned with improved safety/security/comfort/efficiency in all modes of transport, transport managers concerned with improved mobility, tourists, and tourist service providers. All areas of KAI can provide examples of proposals with a strong socio-economic content.

3.3.2.2. Key action 2: *New Methods of Work and Electronic Commerce*

The main socio-economic research objectives of KAII are addressed in the action line II.I.I, "New perspectives for work and business". This concerns social, economic, industrial and environmental implications of novel technologies for work and business and provides guidance to other activities in KAII, included to legal and policy activities. The work programme for the year 2000 builds on the previous year's project portfolio and focuses further the socio-economic research activities of KAII to where it is needed most. Three distinct fields have been addressed: *measuring* the new economy, identifying *shaping factors* of the emerging mew ways of work and business *and helping KAII to best contribute to major EU policies.*

This key action has attracted 691 in total as a result of the second, third and fourth IST calls for proposals. In overall terms the proposals were highly interdisciplinary. Economic, legal and social issues were well covered, both in the received and the retained research proposals.

In the Support Measures for AL II.1.1 also, there was some coverage of economic, legal and social issues involved in the growth of the digital economy, both inside and outside the EU, and including also pre-accession countries.

3.3.2.3. Key action 3: *Multimedia Content and Tools*

This Key Action has attracted 614 proposals in total as a result of the second, third and fourth IST calls for proposals.

A strong socio-economic dimension is intrinsic in the public interest areas Education and Training, and Cultural Heritage, while other KA3 domains contribute to objectives of socio-economic relevance such as innovation, creativity, and user-friendliness in the European media industry and related services. Impetus is given to (multimedia) business development, providing opportunities for new, often small firms, especially those producing creative content. Innovative applications and test-beds in education, training and cultural heritage are all major drivers for the development and validation of new services and systems. European citizens, both as consumers and professionals, benefit from easier access to knowledge, and more intuitive, natural ways of interacting with systems, services and other people or communities. These developments help reduce exclusion from the Information Society. KA3 aims at clearly fostering IST integration and convergence by forging alliances between providers of digital content, online and mobile services, and a wide array of (public and private) users.

3.3.2.4. Key action 4: *Essential Technologies and Infrastructures*

This key action has attracted 641 proposals in total as a result of the second, third and fourth IST calls for proposals.

IST Key Action IV brings together the research and developments of essential ICT technologies and infrastructures with activities to accelerate their take-up and broaden their fields of application. The strategic focus of the Key Action's Workprogramme 2000 is on both enabling the widest possible access to essential and interoperable infrastructures and services to underpin the next generations of applications, as well as on contributing to issues of convergence, interoperability and interworking at all technological levels. Proposals addressing interdisciplinary work that cuts across Action Lines in Key Action IV are explicitly encouraged.

3.3.2.5. New Cross Programme Actions

In addition to the socio-economic activities of the key actions, socio-economic perspectives on the implications of IS technologies were the subject of Cross-programme Actions 7 and 8. These were new additions to the 2000 work-programme and were aimed at complementing and supporting other more specific socio-economic activities to be undertaken within individual Key Actions. **Cross-programme Action 7** (CPA7: *Socio-Economic analysis for the information society*) was open for the first time in the third IST call for proposals. Its objective in the third IST call was to develop a better understanding of the challenges, impacts and opportunities associated with the deployment and use of new IST solutions whether in everyday life, at work or in business. This included the study of the interplay between a broad range of technological, human, social, economic, environmental and policy issues that critically impact effective use and adoption of new IST solutions and developing novel approaches aimed at identifying and quantifying the many new facets and trends of the Information Society and the emerging digital economy. Emphasis in the call was on the macro-economic dimension of the Information Society and on challenges relating to usability and broad adoption of IST solutions with a particular emphasis on design requirements, skill requirements and policy requirements as they relate to job creation, equal opportunities and social inclusion.

Nineteen proposals were received under this CPA7 as a result of the third IST call and nine out of them are foreseen to be funded.

Cross-programme action 8 (CPA8: *Statistical tools, methods, indicators & applications for the Information Society*)

CPA 8 is the continuation of the CPA4 "Statistical tools and methods" of the 1999 work programme, albeit with refocused objectives. It aims at developing new statistical tools, methods and indicators, at exploiting information society technologies, at disseminating their use in information society applications, while serving the needs of official statistics within the European Statistical System. This CPA has by essence a strong socio-economic dimension, because it intends to better describe the socio-economic realities and to capture the development of emerging phenomena.

Three calls for proposals were launched or evaluated in 2000 under this cross programme action. In particular, the 5th call (launched on October 14th, 2000 and with deadline on January, 15th) was limited to the definition, measurement and exploitation of new socio-economic statistical indicators for the information society. Proposers were encouraged to focus on priorities of the *e*Europe action plan.

During 2000, 16 proposals were retained, originated from the 2nd, the 3rd and the 4th call.

Future and Emerging Technologies (FET):

FET covers upstream, basic or long-term IST research which is valued for its high-risk & high potential impact (e.g. quantum computing, nanotechnologies, artificial intelligence systems). In these and other FET-funded research the socio-economic dimension is evaluated for each submitted proposal in terms of likely future impact if the novel approach succeeds.

FET covers open and proactive approaches. The open scheme imposes no pre-defined topics, nor fixed submission deadlines, whereas the proactive initiatives address a common problem or vision through cross-linked interdisciplinary projects.

In the development of its work programme, FET has a mandate to consult with the IPTS (Institute for Prospective Technological studies, a branch of the Joint Research Centre in Sevilla). The consultations are bi-directional: IPTS covers technology foresight and/or assessment activities (which specifically requires the judgement of social scientists and the use of techno-economic analyses) whereas FET covers technology roadmapping and "brainstorming" activities (to explore novel, typically interdisciplinary domains. An example is the Neuro-Informatics initiative, whose preparation, Call for Proposals, and evaluation in November 2000 was conducted jointly by FET-Information Society DG and the cognitive neuroscience unit of DG Research. These activities include experts on the socio-economic dimension in the impact of future and emerging technologies (the consultation reports are available on request from FET or IPTS).

Improving Human Capital (IHC): with the Action "Improving Human Capital" (IHC) the IST programme addresses the political problem of the skills gap in European ICT Industries and wants to reduce existing knowledge gaps, and stimulate progress in the societal and economic aspects of what is to be an Information Society.

3.3.3. Other related activities and events

- The IST Programme participated with three representatives in the workshop "Interdisciplinary Integration in FP5"[6] which stimulated the debate on the obstacles preventing the integration of the socio-economic dimension and of interdisciplinarity in the thematic programmes.
- A first socio-economic evaluation of IST cultural heritage proposals (from the first and second IST calls) was commissioned by Unit D/2 of DG-INFSO (Cultural Heritage Applications) and took place in April 2000.
- The second socio-economic evaluation of IST proposals in the area of Cultural Heritage took place in December 2000 targeting all proposals submitted in this area of the IST programme as a response to the third and fourth IST calls for proposals. The respective reports of the first and second socio-economic evaluations of Cultural Heritage proposals can be found under: http://www.cordis.lu/ist/ka3/digicult/en/backgrd.html.
- The IST Programme Unit F4, responsible for co-ordinating socio-economic research work in the IST programme, has developed a new web site specifically dedicated to the socio-economic dimension in the IST Programme and related activities (http://www.cordis.lu/ist/socioeconomic/home.html)
- Three events were organised by the IST Programme to address the challenge of successfully integrating socio-economic research in KAII:
    1. the KAII project concertation meeting in April 2000 identified the areas covered by existing projects and further needs to be addressed;
    2. A workshop in May 2000 took place as a follow up of the concertation meeting with two outcomes: clustering areas for socio-economic research projects in KAII were identified; the most promising links between socio-economic and technological research projects were also identified.
    3. In the KAII conference (Madrid, November 2000), another workshop addressed concrete operational ways in which socio-economic research activities in KAII can best serve the needs of individual technological projects in optimising their performance and impact.
- The IST Annual Conference and Exhibition for the year 2000 was held in Nice (FR) in November 2000.It included sessions on e-democracy and e-government, information society and social exclusion/inclusion and on e-learning.

[6] A two-day workshop organised by the Human Potential Programme in December 2000.

3.4. THEMATIC PROGRAMME ON *ENERGY, ENVIRONMENT AND SUSTAINABLE DEVELOPMENT (EESD)*

The EESD Programme is divided into two sub-programmes:

a). The sub-programme on *Environment and Sustainable Development*

b). The sub-programme on *Energy*.

In the year 2000, both parts of the programme operated based on the 1999 version of the work programme. The work programme was updated in October 2000 for the years 2001 and 2002.

The Socio-Economic Research activity for the Energy, Environment and Sustainable Development Programme in the year 2000 has found a "robust identity" in subjects being considered as catalysts and at the same time has financed various projects from which it cannot be said that it corresponds to a well focused priority or even to a priority according the emerging new issues in these areas.

The "robust identity" is mainly contained in the generic research activity; it is relative first to the development or the application of modelling applied to energy, environment, economy, transport, urban planning. These models are addressing mainly the economic and technological dimensions of these areas, both at the micro, sectoral and macro levels, according top-down or bottom-up approaches, considering the regional, national and world dimensions. Development of world models for energy, environment and economy is today something operational, and subject to further improvements considered in the past as too much ambitious and today well undercontroled e.g. emission trading between more than 20 regions/countries for multi Greenhouse gases; endogeneisation of technological progress for energy technology in relation with R&D budget; general equilibrium models at the world level with a representation of all the EU countries and taking into account environment in the trade system.....

A strong visibility has also been found with the research about the externalities; accounting framework of environmental costs well established for energy and transport, methodological developments for water and other sectors or pollutants, economic analysis about internalisation issue are producing results really helpful today for policies in terms of investment choices or subsidies; they are preparing also the future background support to the new strategy under preparation about Sustainable Development; research in this last area applied to Regions also has provided rich results, both in terms of methodologies and results, in particular through indicators. For these activities, strong networks of excellence are established in Europe. Other services of the Commission and the Member States themselves are using the tools or results of their applications for the needs of these own policy making.

The other part of the socio-economic research, more spread and less methodological oriented often represents the socio-economic dimension of the scientific or technological projects. In these cases, the objective of the research is less precise in terms of research itself and more attached to the characterisation of the social or economic issues.

It is difficult to extract from this kind of activity something which could be applied systematically to similar projects or issues and so, the usefulness of such research is just to ensure that a comprehensive approach has been applied to a scientific or technological issue; this corresponds anyway to a progress compared to the past, but this is not enough.

So, at this stage, we cannot say that a link between the generic research and the complementary socio-economic dimension of the S&T research has been operational.

Clear socio-economic topics in the key actions (like Climate) or socio-economic key actions by construction (like City of Tomorrow) have of course developed their own products; they are very similar in this case to products provided by the socio-economic generic activity (the boarder line is difficult to define). It has to be considered nevertheless as an exception.

These considerations have been made by the "5 years assessment panel" in 2000 and they should have repercussions in the future. In particular the following questions should be solved:

- To what extent is it necessary to oblige each project to have a socio-economic component in terms of research ? Is it not better to proceed in such a way for clusters of projects ? Is it not sufficient to have one socio-economic topic for each key action, which concentrates on this kind of analysis?
- Is it not better to consider generic research as a direct support to the policy aspects of the thematic programmes or policies and not as an activity for the pure research, without obligation of usefulness for policy or for methodological support for key actions ?
- What is the link to establish with the horizontal socio-economic activity ? How to implement it in an effective way ?

In parallel to these considerations, it can be observed that the best use which has been made from the socio-economic activity is when this research was relative to urgent and important issues for the EU policies; the three most important examples are certainly: Climate Change, Employment and Social Cohesion, Sustainable Development (not only environment but also competitiveness, economic and social, co-operation aspects). For this issue, a visible outcome has been provided, well appreciated and useful when it was based on methodologies and quantitative results. This lesson has to be pointed out because it could help to orient future socio-economic activity, in terms of objectives, organisation and substance.

3.4.1. Sub-programme Environment and Sustainable Development

The year 2000 has been an important year for the socio-economic activity through its contribution to two initiatives at the level of the Commission and the EU: the European Climate Change Programme and the Sustainable Development Strategy. These two initiatives are in large part based on socio-economic dimension and the research is producing both tools, indicators or impact assessment for these issues.

In parallel to this contribution, the implementation of the projects selected in 1999 and the selection of new socio-economic projects both in the key actions and the generic activity have been proceeded. If successful, these projects should provide advanced tools treating complex and not well known economic issues (e.g. externalities) for decision making in sensitive areas like Climate Change and Sustainable Development.

Objectives and Structure

The strategic goal of this part of the Programme in the year 2000 was to promote environmental science and technology so as to improve our quality of life and boost growth, competitiveness and employment, while meeting the need for sustainable management of resources and protection of the environment.

In the year 2000, this sub-programme had the following structure:

1. Key-action 1: Sustainable management and quality of water
2. Key-action 2 : Global change, climate and biodiversity
3. Key-action 3 : Sustainable marine ecosystems
4. Key-action 4 : The city of tomorrow and cultural heritage
5. RTD activities of a generic nature.
6. Support for research infrastructures.

Key action 1: *Sustainable Management and Quality of Water*

Addressing an area where agricultural, environmental and regional policies intersect, this key-action is intended to develop the knowledge and technologies needed to guarantee European water supplies (particularly high-quality drinking water) at an affordable price and in sufficient quantity.

This key action has integrated socio-economic concerns into its RTD priorities and has a separate action-line (AL1.1.2) devoted to "Socio-economic aspects of sustainable use of water" involving issues such as water legislation; utilisation of economic instruments for the promotion of rational and sustainable use of water; economic instruments for pollution control; water market liberalisation scenarios; consumer protection; local authorities; competitiveness and employment; pricing policies; people's perceptions and expectations with regard to sustainable water management (including health issues, barriers to water conservation, re-use of water, etc.).

However, the low coverage of this sub-area (socio-economic aspects of sustainable use of water) points to the need for a bigger effort in the future. So far project emphasise **policy relevant work** on topics such as the correlation between property rights, institutional rational choice and sustainable water management, etc....

Five projects have been chosen for this sub-area, all of them displaying strong multi-disciplinarity.

Some areas of political urgency and interest have not been adequately covered so far and should be emphasised in the future. For example, juridical status of water and institutional frames in the Member States legislation; implications of water market liberalisation on governance structures, consumer protection and the environment, local authorities, competitiveness and employment.

Other areas like « water pricing » which address the issue of external costs assessment and their internalisation are becoming more and more important in the context of water policy in general (including definitions of norms and pricing) and also in the context of the Sustainable Development Strategy which is under preparation.

It is expected that these areas which were open in the third call published in November 2000 with a deadline at the end of 2001 will be well covered by the proposals due to their high sensitiveness these last years.

Key action 2: *Global Change, Climate and Biodiversity*

This key action has focused on developing the scientific, technological and socio-economic basis and tools necessary for the study and understanding of changes in the environment. It has concentrated on global and regional environmental problems that have a potentially significant impact on Europe, such as climate change, ozone depletion, biodiversity loss, loss of habitats and fertile land, disruptions to ocean circulation, in the context of sustainable development.

The socio-economic dimension is addressed mainly under sub-theme 2.3: *Scenarios and strategies for responding to global change issues* which focuses on the effort to develop policy options and strategies including a consideration of the implications of human activities for global change as well as of the socio-economic implications of ongoing global change.

The second call for proposals was more successful than the first in relation to socio-economic research. Sub-theme 2.3.1. (*Scenarios and strategies for responding to global change issues*) was re-opened in the year 2000 (second call for proposals) because of the low response rate of the first call in 1999.

Eight proposals were funded under action line 2.3.1.

The selected proposals have introduced very novative subjects in relation with the most recent needs of the Climate Change negotiations and scientific assessments. Research and concerted action on tradable permit or Joint Implementation and Clean Development mechanisms are involving the main economic institutes in EU with the direct benefit that these institutes are in general preparing the background support of the negotiations in their countries. A project linking international trade and emissions trading has also been selected in 2000, based on the development and application of advanced world modelling representing macro economic systems of the main regions and countries, CO2 emissions and trade.

Another important initiative has started in 2000 in the framework of this activity : the participation to the European Climate Change Programme created for achieving the Kyoto objectives in EU ; a working group on research has assessed the comprehensive outcome of the socio-economic research useful for the implementation of the Kyoto Protocol and has identified the future research needs in this area. The report of this common Commission and Member States will be subject of a Communication at the middle of 2001.

Key action 3: ***Sustainable Marine Ecosystems***

This key-action supports research aiming to contribute to a better use and management of the coastal and marine environment, not only by adding relevant knowledge and technology, but also by integrating interrelated processes by considering socio-economic implications and by enabling better forecasts of the environmental parameters, which have an impact on marine activities.

At the level of the work programme, the main socio-economic elements of this key-action can be found under action line 3.2 which in the year 2000 has supported research related to the reduction of anthropogenic impact on biodiversity, the sustainable functioning of marine ecosystems, and the development of safe, economic and sustainable exploitation technologies.

At the level of projects, however, socio-economic aspects are present only in few projects. The ESD Programme plans to give a higher visibility to the socio-economic aspects in future calls for proposals.

The ESD Programme has made an effort to cluster projects which could, at the end, cover important socio-economic issues. The development of options and strategies for dealing with human impacts on environmental degradation of the marine ecosystems and the development of scenaria for socio-economic benefits arising from the reduction of human effects on the marine environment are subject of research through such clusters.

Key action 4: ***City of Tomorrow and Cultural Heritage***

This key action has a strong socio-economic character and it largely bridges the gap between socio-economic and technological RTD and has a potential for contributing to a wide range of EU policies with significant socio-economic aspects including sustainable urban development, environment, climate change, spatial development, etc. The nature of the customer-oriented deliverables of this key action makes necessary the adoption of an integrated socio-economic and technological approach. This applies to the majority of the sub-themes. Accordingly, the major part of this key action can be described as *"applied"* socio-economic research. This is reinforced by the required output of the research. It should have the potential to lead to direct benefits to European citizens and, wherever possible, their participation in decision making.

The priority themes open in the 2000 call placed strong emphasis on the direct socio-economic benefits, which should arise from the research. They included:

- *Improving the quality of urban life* (sub-theme 4.1.2
- *Waste reduction and its life cycle management* (sub-theme 4.1.3)
- *Economic development, competitiveness and employment* (sub-theme 4.1.4) *developing best practices to integrate technologies to improve job creation in the urban context*
- *Fostering integration of cultural heritage in the urban setting* (sub-theme 4.2.3)
- *Revitalisation of city centres and neighbourhoods* (sub-theme 4.3.1.)
- *Comparative assessment and demonstration of new technologies and related infrastructure* (sub-theme 4.4.2).

The other two sub-themes – *Improved damage assessment on cultural heritage* (4.2.1) and *Development of innovative conservation strategies* (4.2.3) were technical in nature although the expected deliverables in terms of preservation of cultural heritage were manifestly socio-economic in facilitating the cultural development of citizens and the economic potential of sustainable tourism.

In the year 2000, 284 proposals were received, 264 evaluated and 47 proposals passed evaluation. Out of these, 29 proposals were retained for funding (37 M EURO).

For this key action, all the topics initially targeted are now covered. The last selected projects are of a very good quality. While proposals in the year 2000 are improved compared to those of the first call, the number of selected proposals is similar.

The large over-subscription (approximately 11/1for Submitted/Funded proposals, although only 4/3 for Go/Funded proposals) would seem to reflect the aspirations of many applied socio-economic researchers seeking to package their research themes into the Work programme of the Key Action. In many cases proposals did not match the requirements.

Among the proposals being funded there are some encouraging signs of increasing levels of user participation and public authorities.

Generic activities

The purpose of the projects selected in this sub-theme is various and treats either the question of instruments, modelling or impact assessment and sustainability issues. Quantitative approaches seem to become more important compared to the previous year and programme. This orientation has been confirmed in 2000 through the strengthening of the methodological aspects and quantification in the revision of the work programme.

The year 2000 has also been the starting point of the EU strategy about the Sustainable Development and this has been subject of specific work in the generic activity: assessment of research projects useful for the strategy and identification of priorities of the coming next years have been established; a booklet on this subject has been edited. Indicators for regional sustainable development, external costs and economic-environment modelling are and will be the research products, which will be the most important for the future activity in this area.

3.4.2. Sub-programme energy

3.4.2.1.Non-nuclear energy

The strategic goal of this part of the Programme in the year 2000 was, to develop sustainable energy systems and services for Europe; to contribute to a more sustainable development world-wide, leading to increased security and diversity of supply; to provide high-quality and low-cost energy services; to improve industrial competitiveness and to reduce environmental impacts.

In the year 2000, the sub-programme on NON-NUCLEAR ENERGY had the following structure:

- Key action 5 : *Cleaner energy systems, including renewables.*
- Key action 6 : *Economic and efficient energy for a competitive Europe.*
- Research and technological development activities of a generic nature.

Key action 5: *Cleaner Energy Systems, including Renewables.*

This key-action is trying to answer the question: how to secure –and diversify- the European Union's energy supplies in the face of the expected growth, while reducing the impact of this consumption on the environment? The key action set the following priorities for the year 2000:

- Large scale generation of electricity and/or heat with reduced CO_2 emissions from coal, biomass and other fuels, including combined heat and power ;
- Development and demonstration, including for decentralised generation, of the main new and renewable energy sources, in particular, biomass, wind and solar technologies, and of fuel cells ;
- Integration of new and renewable energy sources into energy systems;
- Cost effective environmental abatement technologies for power production.

717 proposals were received out of which 235 were retained.

Key action 6: *Economic and Efficient Energy for a competitive Europe*

This key action aims at improving the efficiency of the energy cycle and at reducing costs at all stages – production, distribution and use. The following priorities were set for the year 2000:

- Technologies for the rational and efficient end use of energy ;
- Technologies for the transmission and distribution of energy ;
- Technologies for the storage of energy on both macro and micro scale;
- More efficient exploration, extraction and production technologies for hydrocarbons ;
- Improving the efficiency of new and renewable energy sources ;
- The elaboration of scenarios on supply and demand technologies in economy/ environment/energy (E3) systems and their interactions, and the analysis of the cost effectiveness (based on whole life costs) and efficiency of all energy sources.

767 proposals were received in the year 2000 out of which 283 were retained.

Energy RTD activities of a generic nature.

Socio-economic aspects of energy within the perspective of sustainable development (the impact on society, the economy and employment).

Following the Communication "Towards a European Research Area" (COM(2000) 6), the recommendations of the External Advisory Groups and different expert committees, the ENERGY work programme has been revised taking into consideration the following priorities.

For the **short term**, the following specific **target actions** have been identified:

- Fuel Cells and H2: Application Driven Fuel Cells;
- Biomass for the production of heat and electricity : Bio-Electricity;
- Integration of RES and distributed generation of energy systems;
- Sustainable Communities;
- Rational Use of energy : Clean Urban Transport;
- Rational Use of energy : Eco-Buildings;
- Clean Power Generation : Gas Power Generation.

For **medium to long-term** the **target actions** deal with:

- Fuel Cells and H2: Fuel Cells & H2;
- Biomass for the production of heat and electricity : Bio Energy;
- Integration of RES and distributed generation of energy systems : Integration;
- Rational Use of energy : Cleaner Fuels for Transport;
- Storage of Energy: Storage;
- Photovoltaics: PV.

The following priorities have been considered of **strategic importance** to the EU:

- Management of green house gases (GHG) emissions and climate change;
- Exploiting the potential of new ICTs in energy RTD including e-science issues;
- Socio-economic research related to energy technologies and their impact;
- International co-operation, co-ordination with Member States research programmes and EU wide research networks;
- Pre-normative research of interest at EU level.

40 proposals were received in the year 2000 and 17 were retained.

3.4.2.2. Nuclear energy (Euratom)

The objective of EURATOM in FP5 is to help exploit the full potential of nuclear energy, in a sustainable manner, by making current technologies even safer and more economical, and by exploring promising new concepts. Nuclear research includes:

- Key action on *Controlled thermonuclear fusion*
- Key action on *Nuclear fission*
- Generic research on *Radiological Sciences*
- Support for research infrastructures
- Activities of the Joint Research Centre

Key action *on Controlled Thermonuclear Fusion*

The aim of this key action is to further develop the necessary basis for the possible construction of an experimental reactor, with the objective of demonstrating the scientific and technological feasibility of fusion power production as well as its potential safety and environmental benefits. In the longer term, it will prepare for the development of a demonstration reactor (in the framework of international co-operation such as the International Thermonuclear Experimental Reactor).

Following the information given on the outcome of the Socio-Economic Research on Fusion (SERF) studies under FP4 (1997-1998) and discussions of the possible topics for SERF activities under FP5, the CCE-FU recommended that socio-economic research on fusion should be sufficiently specific and focussed on issues of direct concern for the European fusion community, while relying on a wider approach -involving appropriate experts from outside fusion- concerning other energy sources and agreed with the Commission's proposal that future SERF studies would be implemented along two parallel but organisationally distinct categories: 1) fusion-specific studies through Technology tasks and 2) studies of relevance to fusion but of a wider scope to be subject of a general call for proposals.

Fusion-specific Studies

It was decided that these studies would be undertaken within the framework of the European Fusion Development Agreement (EFDA). The fusion-specific studies were subsequently incorporated in the EFDA Workplan. The tasks are the following:

Task 1: Externalities of Fusion.
The aim of this activity is to improve previous work on quantitative assessments of social and economic external costs of fusion power generation, with particular regard to trade-off between design criteria and consequences on externalities. Six Euratom Associations (CEA, CIEMAT, NFR, IPP, TEKES and UKAEA) are contributing to this Task for a total expenditure of 500 k Euro.

Task 2: Local Public Perception.
The aim of this activity is to provide information on how to achieve local public participation in decision-making processes and to develop appropriate strategies to interact with local communities. The accent is on the key issue of providing "local social acceptability" guidelines to the possible siting of a large fusion research facility like ITER.

Task 3: Politics and Mega-science: the Global Scale of Fusion.
The aim of this activity is to increase the awareness concerning fusion among social scientists, possibly with accent on aspects of networking of research institutes, so to widen the circle of scientists dealing with fusion in their research.

Task 4: Trust and Licensing Procedures for large Fusion Devices.
The aim is to study issues connected with the transfer of fusion knowledge from fusion laboratories and, eventually, from industry, to licensing "authorities" in a way that should guarantee optimal trust of the public toward such licensing bodies or systems.

The SERF-2 report is now under preparation and will be available in mid 2001.

Socio-economic Activities related to ITER siting in EU

Two socio-economic activities will also be undertaken in the framework of the 'EFDA Technical Working Group for Examining ITER Sites in Europe'. The analysis will be made with the help of a detailed description of the local economy (input/output analysis) and by a review of (comparable) studies that have been carried out with respect to benefits of already existing installations as JET and CERN.

Key action *on Nuclear Fission*

The main objective of this key action is to enhance the safety of Europe's nuclear installations and improve the competitiveness of Europe's industry. It aims also to:

- ensure protection of workers and the public from radiation;
- safe and effective waste management and disposal;
- explore more innovative concepts that are sustainable;
- contribute to maintain expertise and competence.

About 80 M euro was committed in 2000 in support of 86 Projects. About 80% of the resources addressed the objectives of the key action on nuclear fission energy, about 12% on generic research in the radiological sciences, with the remainder on support for research infrastructure and training. Much of the research is highly technical in nature and has only modest direct socio-economic relevance, at least in the short term. Research on reactor safety and waste management will, in due course, have a broader social impact as a result of providing greater confidence in the adequacy of the technical approaches proposed or adopted. Research on innovative nuclear systems has an important economic dimension, in particular in identifying how fission energy can be generated more safely and at lower cost (in both monetary and environmental terms). Much of the research in the radiological sciences is directed towards providing a basis for Community standards on radiation protection from all uses of radiation and natural sources.

Fission specific studies
Risk Governance

Public concern about new technologies is not new, indeed it has been common place since the onset of the industrial revolution. The social context in which new technologies are implemented has, however, changed radically in the closing decades of the last millennium.

Research carried out in FP4 resulted in the publication of a report "The TRUSTNET Framework: a New Perspective on Risk Governance" (EUR 19136 EN). This report makes a significant contribution to the identification of better approaches to risk governance. The report is intended to stimulate debate and promote a common understanding of what is at stake if these issues are not properly addressed

Research on risk governance continues in FP5 and support is being given to the continuation of the TRUSTNET network established in FP4. The network will include representatives from public authorities at national and European levels, elected representatives, NGOs, Trade Unions, major industries and experts from a wide range of scientific disciplines. The main issues to be addressed by the network in the next three years are:

- the role of specialised agencies
- the implementation of the precautionary principle
- the role of experts and science in the decision-making process
- the impact of flexible decentralised risk management on free trade and industry

Nuclear Waste Management and Disposal

There is a broad scientific and technical consensus that radioactive wastes can be disposed of safely. However, this is not accepted by the general population; indeed, resistance to nuclear waste disposal is widespread and persistent and has resulted in changes in waste management policy or its implementation in several countries. Research in FP5 is being directed to obtaining a better understanding of the origins of pubic attitudes towards waste disposal and the development of approaches to decision making that are transparent, defensible and capable of gaining public trust and confidence.

The COWAM network has been established with the objective of developing practicable recommendations for improving the decision-making process at local and regional levels for the siting of nuclear waste management facilities. One of the immediate aims is to establish a sustainable network of local and regional "stakeholders" who are actively involved in different European countries with nuclear waste disposal. The network will provide them with mutual support and promote a common understanding of the issues that face them and how these are being dealt with in different countries.

The RISCOM project is directed towards supporting waste management organisations and regulatory bodies in developing greater transparency in their activities and means for greater and more effective public participation in the decision processes. The RISCOM model is being used to evaluate the degree of transparency in decision-making processes in different countries. Different modes of public participation are being evaluated as an input to identifying good practice, albeit which will need to be conditioned by local culture and conditions.

3.5. HORIZONTAL PROGRAMMES

3.5.1 Horizontal Programme International Co-operation (INCO)

3.5.1.1. Background

INCO is the dedicated programme of international co-operation with third countries, training of researchers and co-ordination. Different objectives and approaches have been developed to accommodate the specific nature of the problems in different world regions.

Five entirely separate and quite distinct sub-programmes are supported covering respectively:

- European countries which are candidates for accession to the EU;
- Central and Eastern European countries which are not candidates for accession, as well as the New Independent States and Mongolia;
- Mediterranean partner countries (INCO-MED);
- Developing countries (INCO-DEV);
- Emerging economies and industrialised third countries.

During 2000, the only Call for Proposals published was for the INCO-DEV programme, the programme focused on research for development in co-operation with developing countries. Thus this report will focus on the socio-economic aspects of the INCO-DEV 2000 Call. (Nevertheless it is useful to recall at this point that there are strong socio-economic components within other INCO activities - for example the socio-economic modernisation research priority of the INCO-MED programme which was launched in the 1999 Call).

In the context of socio-economic aspects, reference will also be made also to INCO accompanying measures which were selected or took place in 2000 (for which the Call was published in 1999 and which remains open on a continuous basis for the duration of FP5).

3.5.1.2. Introduction to the socio-economic aspects of the International Programme of Research for Development (INCO-DEV) in 2000

The objectives of the programme are: to undertake research to tackle the challenges posed to Developing Countries; to mobilise the strengths, expertise and resources of the European scientific community jointly with Developing Country research teams; and, to use RTD co-operation to support Community development co-operation policy in line with current strategy.

Inherent to the problem-solving approach of the programme is recognition that social, societal and economic aspects are integrally linked to issues of development. Indeed the recognition that socio-economic aspects are key elements in tackling the challenges facing developing countries provided the foundation for the design of INCO-DEV.

The design of the programme is both innovative and holistic in a comprehensive effort to include relevant socio-economic aspects in the research areas which are to be supported. In addition proposals are invited on socio-economic research in itself (e.g. the global knowledge society, analysis of socio-economic factors in productivity of ecosystems, understanding of interactions between international money flow, investment and trade in environmentally sustainable activities.

The programme specifically favours inter and multidisciplinary approaches in research proposals. In order to achieve this there is an integrated scheme consisting of three levels of research: (a) policy research to determine the conditions for sustainable development, including gender issues, involving the state, market forces and civil society; (b) systems research on complex issues involving many interacting components, such as, rehabilitation and management of renewable natural resources or health care; and (c) research on specific scientific and technological problems to generate tools for sustainable development, which can be used in a particular context of system management or policy development.

This three-level scheme creates unity since it can be applied to research independently of thematic area and also to cross-sectoral subjects. Importance is also given to research on individual scientific or technological problems on a sectoral basis. However the policy and systems backgrounds to these problems, need to be examined on a broader front. The approach thus also includes a process of thematic concentration, with policy research covering strategic sectors and representing the broadest thematic range, systems research narrowing to natural capital and the human environment, including health, and tools research focussing on specific key items.

The INCO-DEV 2000 Call, was the programme's largest Call (budget 80 M EUROs, out of a total available of 201.5 M EUROs) for the period of the 5th Framework Programme. The research priorities published included some elements that were the same as those from those in the 1999 Call, but the majorities were different.

3.5.1.3 For the year 2000 the INCO-DEV programme put emphasis on the following priorities:

- **Making the most of research: RTD in the global knowledge society.**
  The aim of this theme is to determine how to ensure effective use of the resources invested in RTD in Developing Countries. This means considering demand for research from users as well as supply factors, such as the often dispersed and uncoordinated sources of support to research or the relative isolation of researchers.

- **Natural resource use and economic production: adaptation to globalisation and ensuring harmony with the environment.**
  Economic development processes are placing increasing pressure on natural resources and the environment. Developing economies must be progressively integrated in the global market. The challenge is to design policies, which harness these processes for the benefit of Developing Countries in such a way that people's living conditions are improved or at least maintained. Natural resources and long-term productive capacity are also to be conserved or rehabilitated where required. As key facilitating sectors, water, energy, communication and transport need particular attention.

- **Strategies for rural productivity: ecosystem management for sustainability**
  Growing population, economic growth, and demands from commercial systems of production and export are placing increased pressures on natural and managed ecosystems. This leads to the twin questions: what are the limits to ecosystem productivity and what management strategies need to be implemented in order to maintain production without compromising the resource-base, such as soil, water and biodiversity. Ecosystems considered range from the pristine to those converted in varying degrees to agricultural use, the terrestrial and the aquatic.

  A specific field of research within this overall topic was the analysis of socio-economic factors, such as land and water tenure and distribution, labour availability, gender issues , population trends or local knowledge and practice, determining productivity of the most important managed ecosystems.

- **Managing the human environment and the rural-urban interface: health systems, water management and land use**
  Population movement from countryside to towns, the ensuing links between these two areas and urban spread into rural areas contribute to a growing importance of the rural-urban interface. Human welfare and the environment are often casualties of the urban growth that is proceeding rapidly in all parts of the developing world. The objective of this theme is the design of systems to reduce the negative impact, contribute to human welfare and provide employment. The priority for the 2000 Call was only on health systems research.

- **Tools for health improvement: attacking major health problems**
  The spread of drug resistance and shortcomings in treatments demand a search for alternatives. Control strategies are frequently limited by lack of knowledge of the biology of pathogens and disease mechanism. Testing and use of new control strategies demand better diagnosis. In all cases research needs to bear in mind the socio-economic context of the target population. The priorities in the 2000 Call were: the design, early stage testing and delivery of drugs, and the design and early stage application of simple and robust diagnostic tools.

- **Technologies for sustainable crop and animal production: building blocks for improvement**
  Growing population, demand for increased quality in the diet and rising expectations resulting from economic progress pose a challenge to agriculture. Additional problems arising from the transition from subsistence to commercial patterns of production require the continuous search for technological solutions. Research will focus on technologies suited to small-scale production systems or to production systems under environmental constraint without eroding natural resources and without over-dependence on inputs. The priorities in the 2000 Call were: cash crops and forestry, animal production and aquaculture and fisheries.

  For the 2000 INCO-DEV Call, overall just over 500 proposals were received and evaluated. Following evaluation 107 proposals were retained for funding, and are now in the contract negotiation phase.

3.5.1.4. Other related activities and events

All the sub-programmes of the INCO programme are complemented in their activities by accompanying measures. These accompanying measures range from workshops, seminars and studies to conference support and networking. For each sub-programme during 2000 there were Calls for accompanying measures open, and in addition activities selected from 1999 were implemented. Noteworthy examples of socio-economic relevance include:

- The setting up of a network of relevant scientific and societal partners from the public and private sectors, NGOs, etc to be involved in an exchange of information on best practice in sustainable environmental development in Bosnia and Hertzegovina with relevant EU projects
- An international colloquium on Gender, population and development in Africa, involving some 30 different African and European partner countries.
- An international conference on 'Interdisciplinary research on Development and the Environment', organised by Oslo University, and attended by research scientists from Africa, Asia, Latin America as well as Europe.
- An international and interdisciplinary conference on 'Trade and the Environment, with a focus on Agriculture'
- An international workshop on preventing flood disasters in Asia, attended by European and Asian research scientists.

3.5.2. Horizontal Programme Human Potential

Introduction to the Programme

The general objectives of the programme are: to improve the human research potential in the European Union and to strengthen the socio-economic knowledge base. It is made of five distinct actions:

- Supporting training and mobility of researchers, through Research Training Networks and Marie Curie Fellowships
- Enhancing access to research infrastructures
- Promoting scientific and technological excellence through activities like the High-Level Scientific Conferences; the Young Scientist Contest; Raising Public Awareness activities
- **The key action on socio-economic research**
- Support for the development of scientific and technology policies in Europe.

The Human Potential Directorate also takes the role of co-ordinating action to increase the role played by women in EU research. Promotion of the participation of women in EU research has become a key concern of the FP5, with the lead taken by the Women and Science sector of the Human Potential Directorate.

Information on the activities of each part of the HP programme can be found in the HP annex, in the second part of this report. **This part of the report focused on the key action on socio-economic research.**

The key action: *Improving the Socio-Economic Knowledge Base*

Objectives:
The overall objective of the key action is to improve our understanding of the major structural changes taking place in European societies, to identify opportunities and risks, to assess the feasibility, acceptability and impact of different policy options, and to involve European citizens more actively in shaping their own future. This requires the analysis of the main trends giving rise to change; the relationships between technology, employment and society; the re-appraisal of participation mechanisms for collective action at all levels of governance; the elaboration of new development strategies fostering growth, employment and economic and social cohesion.

There are four key thematic areas that form the basis of research supported by the key action:
1. Societal trends and structural changes
2. Technology, society and employment
3. Governance and citizenship
4. New development models fostering growth and employment

Research Priorities in the year 2000

The key action is implemented through a number of Calls for Proposals. Each Call addresses a new set of specific Research Tasks. The second call for proposals of the key action was opened in January 2000 and was evaluated in September 2000 (with a budget of 55 million EURO). It was the only call for proposals of the key action in the year 2000. Research priorities for the year 2000 were organised under seven themes:

- Towards improved management of societal change
- Individual and collective strategies in a changing society
- Employment and unemployment in Europe
- Towards social cohesion in Europe
- New perspectives for learning
- Governance, citizenship and the dynamics of European integration
- The challenge of EU enlargement

As a result of this second call, 374 proposals were received (333 RTD and 41 Thematic Network proposals). Out of these, 21 proposals were ineligible. Of the 353 proposals evaluated, 111 were ranked and around 70 proposals will be selected and negotiated. Almost 10/% of the research teams involved come from candidate countries but in no case as a co-ordinator.

Accompanying Measures

Effective targeting and dissemination of results is a key feature of the Key Action. This involves a series of activities such as workshops, publications and the creation of relevant information databases. This set of activities is mainly supported through the accompanying measures. Most of the proposals for accompanying measures received in the year 2000 were mainly addressing Measure 2[7] , Measure 3[8] and Measure 4[9].

The "Dialogue Workshops"

In the year 2000, the key action launched a series of twelve "dialogue workshops" that will take place between 2000 and 2002. The subjects addressed in the 'dialogue workshops' include topics based on 'mature' research and topics of a more exploratory nature. The first will relate to research supported under the socio-economic research activities of the European Commission, namely the Targeted Socio-economic Research programme of FP4 and ongoing research under the Key Action 'Improving the Socio-economic Knowledge Base' of FP5. The more 'exploratory' topics relate to emerging socio-economic issues and potential research priorities for future European research. The "dialogue workshops" are intended to bring socio-economic research closer to citizens, policymakers, non-governmental organisations and business.

[7] exchanges of information, conferences, seminars, workshops, round tables, study panels or other scientific or technical meetings

[8] information, communication and dissemination activities, including scientific publications and activities for the promotion and exploitation of results and the transfer of technology

[9] stimulation grants: support in order to bring together potential participants, in particular as a means of stimulating proposals in newly emerging fields of social science, especially those involving innovative transdisciplinary approaches, or in fields where there is little history of transnational co-operation

They aim to go beyond "communication of research results" to the people "outside" the research system, and rather engage in a dialogue that includes learning from the experience and practical knowledge of the various social actors/"stakeholders". Four "dialogue workshops" were held in the year 2000 addressing the following topics:

- *Technology, Economic Integration and Social Cohesion* (May 2000)
- *Work and Welfare* (November 2000)
- *Regional Dimensions of RTD Strategies* (November 2000)
- *Global Trade and Globalising Society: Challenges for Governance, Economic Development and Sustainability* (December 2000)

Other activities of the key action in the year 2000.

The key action launched a series of high level scientific and political conferences under each presidency of the Union. This series has three goals: To make a state of the art of the research that has been done so far within the programme; to explore new fields of research that could be addressed in the future; to stress the crucial role of the social and human sciences for Europe. Three conferences were held in the year 2000 and early 2001:

Towards a learning society: innovation and competence building with social cohesion for Europe (Lisbon, May 2000).

Humanities and social sciences in European Research Area (Paris Sorbonne, October 2000).

Europe with a human face- Towards a European Public Sphere. A challenge for the Humanities and Social Sciences (Uppsala, February 2001).

4. SOME CONCLUSIONS FOR THE YEAR 2000

4.1. Based on the activity of the Co-ordination team of the Human Potential programme

4.1.1. Impact of the 1999 Annual Report

Approximately 300 copies of the 1999 report (paper version) were requested and diffused. The electronic version of the 1999 report scored 900 hits between April and November 2000. This means that the 1999 report was read by a significant number of people in the year 2000.

In addition, the co-ordination team received numerous telephone and e-mail enquires related to the 1999 report. Many of the these enquiries came from potential proposers seeking to improve their understanding of what the socio-economic dimension is, what interdisciplinarity means and how it can be achieved with a view to adjust better their proposals in relation to the evaluation criteria set by the Commission.

The same concern, that is how to better integrate the socio-economic dimension in proposals, was expressed clearly by researchers from both the hard/natural and the social sciences in the various events in which the members of the co-ordination team took part.

These discussions led us to the conclusion that few proposers both in the hard/natural sciences and in the social sciences are convinced about the potential benefits from the integration of the socio-economic dimension in their research proposals/projects. Even more, few of those who are aware of these benefits know how to establish this co-operation in practice and find potential partners in the social sciences. This raises a serious question on information and raising awareness of the scientific communities on the advantages of such an interdisciplinarity approach to better answer the guidelines of the 5th FP.

4.1.2. "Mini Teams"

The positive contribution of the « mini-teams » mechanism set up by the QOL programme must be stressed. For each key action, a group of correspondents from other research programmes and from the other Directorates-General concerned was formed. This group is consulted in each stage of the implementation of the actions: review of the work Programme, drafting of the information package, calls for proposals, presentation of the Community policies to the appraisers, analysis of the results of the evaluations. All the participants consider this co-operation very positive, because it makes it possible to discuss the positions of each one before being confronted to the approval of the final results. More than that it makes possible to raise awareness from all the internal partners of the Commission on the benefits and the importance for a better integration of the socio-economic dimension in the programme.

4.1.3. Participation in Evaluations

In the framework of the ongoing co-operation between the coordination team of the Human Potential programme and the specific programmes on the integration of the socio-economic dimension and in their capacity as representatives of the former Directorate RTD-F in the Groups of Directors of the respective specific programmes, the members of the co-ordination team have participated as observers in proposal evaluations.

Through this, the members of the co-ordination team were able to study some of the proposals submitted, to exchange views with expert evaluators on the evaluation procedures, evaluation criteria, the quality of the proposals, etc.
In addition to observing proposal evaluations, the members of the co-ordination team have participated in a number of other activities of the specific programmes. An example of the active participation was our involvement in the second socio-economic evaluation of IST proposals in the area of Cultural Heritage, which took place in December 2000.

The second socio-economic evaluation of IST proposals in the area of Cultural Heritage was organised by DG-INFSO/D2 and took place in December 2000 with the assistance of a group of external experts.

The exercise targeted all proposals submitted to the IST programme in the field of Cultural Heritage as a response to the calls 3 and 4 including RTD, take-up actions and support measures.

The main objective of this exercise was to analyse to which extent the proposals in the area of Cultural Heritage applications fulfilled the socio-economic objectives of the IST programme in this area and to give some recommendations for the future orientation of the projects and of the IST work-programme in this field.

In the framework of the ongoing co-operation with the IST programme on the integration of the socio-economic dimension, the co-ordination team was asked to recommend suitably qualified experts for this exercise. It was also invited to the evaluation and asked to contribute to the briefing of the experts.

DG-INFSO has found this exercise particularly useful and is planning to repeat it for a third time in summer 2001 (to evaluate the 3rd and 4th IST calls for proposals).

The benefits expected from this evaluation included:
- an overview of the ways in which the s-e dimension was interpreted/dealt with by proposers
- a measure of the successful (or not successful) integration of the s-e dimension in proposals
- recommendations on how to improve the integration of the s-e dimension
- recommendations enhancing the KA's thinking on the fine-tuning of the specific programme's priorities in this area (both for the rest of FP5 and in terms of planning for FP6).

This exercise has shown that - with the use of carefully chosen experts - a close examination of proposals at the level of the Key Action can provide valuable insights on the socio-economic aspects of proposals in that particular key action. One of our conclusions from our participation in this exercise was that **there is enormous value in encouraging all thematic programmes and individual KAs to organise similar socio-economic assessment at the level of all key actions.**

In addition to the value of such an exercise for each individual key action, the synthesis of the results of such systematic assessments from the different KAs can provide an extremely useful overview of the integration of the socio-economic dimension in proposals across FP5.

4.1.4. Inter-disciplinarity

Workshop on the integration of the socio-economic dimension in FP5 (Brussels, 11-12/12/2000)

A workshop on the integration of the socio-economic dimension in FP5 was organised in December 2000. The workshop was part of the activity of an Accompanying Measures project funded by the Human Potential Programme and implemented by the SUPRA (Scottish Universities Policy Research and Advice) network.

The workshop provided a framework for a discussion of the challenges involved in the integration of the socio-economic dimension and of socio-economic research in the different parts of FP5. A number of external experts and representatives of the specific programmes attended and contributed to the discussion.

The issues discussed at the workshop included:

- The challenges involved in the management of interdisciplinary research programmes
- The challenges involved in the evaluation of socio-economic aspects of interdisciplinary proposals
- The challenges of building and managing an interdisciplinary consortium and conducting interdisciplinary research

Some main conclusions from the discussion are the following:

- "Interdisciplinarity" is a notion that is not solidly defined: it is interpreted and understood differently depending on whether it refers to research that crosses the boundaries between social sciences or between the social and natural sciences or whether it covers both academic or non-academic sectors.
- The rise of interdisciplinarity in all fields of science and technology has important implications for public policy, including the research conducted, the institutions created and the training of future generations of scientists and engineers.
- Institutional rigidity is a major obstacle to both interdisciplinary research and education.

Traditional discipline-based university structures, difficulty to publish interdisciplinary research in the most highly-regarded academic journals (which are discipline-based), and poor career prospects for interdisciplinary researchers, are some of the institutional barriers preventing the full realisation of the benefits of interdisciplinarity in science and technology.

- The integration of the socio-economic dimension and of interdisciplinarity in the thematic programmes of FP5 and in the up-coming FP6 is an enormous challenge and a slow process, in reality a project for the longer-term. In this process, the Commission can take action at a number of different levels.
- The training of new generations of scientists who are more flexible and more attuned to interdisciplinary research is one of the major challenges facing universities.

Some recommendations emerging from the workshop are:

- At the level of the each thematic programme, the Commission should encourage a higher integration of the socio-economic dimension and of interdisciplinarity.
- At the level of proposers and proposal evaluation, the Commission should more drastically encourage and facilitate the participation of social scientists and of researchers with an interdisciplinary background in proposed research projects and in the panels evaluating research proposals.
- At the level of internal culture, the Commission should increase staff awareness of the potential benefits from the integration of the socio-economic dimension and of interdisciplinarity and facilitate the development of an internal supportive culture.

4.2. Some Conclusions provided by the respective Programmes

4.2.1. Some conclusions from the QOL Programme

Over the year 2000, in its 2nd implementation year, the QoL programme was able to react and compensate the initial difficulties in bringing the socio-economic dimension in the frontline of the programme activities. Several components have contributed to this success:

- The launching of a dedicated website;
- The modifications of the call of proposals aiming at concentrating research activities in areas with higher socio-economic relevance;
- The additional information provided both in the work programme (to provide better guidance to applicants) and in the guide for evaluators (to spell out in more detail the socio-economic expectations of the programme);
- The renewed attention to phase two evaluation also taking advantage of a higher number of socio-economic experts willing to contribute ;
- The conduct of several dedicated workshops and meetings with the participation of all concerned parties ;
- The establishment of a few host sites to train young scientists on the socio-economic aspects of research in life sciences.

4.2.2. Some conclusions from the Growth Programme

KA1

The proposals retained under the 5th Framework Programme for KA1 (Products, Processes and Organisation) and Materials Research have the potential for a substantial socio-economic impact in the environment, in health and the working environment, provided that the projects will be successfully accomplished.

This is in line with the overall objective of modernisation of industry within a sustainable development context.

KA2: Priorities for the December 2000 and June 2001 calls

In defining the strategy and priorities for the December 2000 and the June 2001 calls for proposals, particular attention has been paid to the policy priorities established by the Commission, to the relevant results from FP4 (Fourth Framework Programme) projects and to the first step of FP5 projects within the basic priorities of the key action. Particular importance has been given to the integration, validation, demonstration and assessment of previous project results top facilitate transport policy decision-making and implementation at European, national and local levels. The new approach for the implementation of all KA2 activities will focus on two main elements:

Concentration if a substantial fraction of the key action activities around a core set of Targeted Actions which are designed to facilitate the emergence of solutions with a measurable impact, high profile and direct relevance to EU policy objectives. Targeted Actions integrate multidisciplinary and multisectoral activities involving, wherever possible, private-public sector partnerships and end-users from the business, industrial and policy-making sectors;

Identification of a limited number of priorities of strategic importance to the EU, which are to be addressed by proposals related to the topics of the Work Programme.

The CIVITAS Targeted Action is to be opened in combination with the Key Action "Economic and Efficient Energy for a Competitive Europe" of the Energy Sub-programme. CIVITAS requires a co-ordination effort, which pursues an integrated approach to the combination of innovative policies and technologies. A Green book on clean urban transport, to which the CIVITAS Targeted Action is linked, is in preparation. The June 2001 call gives special prominence to rail research (SMART RAIL) whilst maintaining the basic key action profile.

KA3

The key action "Land Transport and Marine Technologies" is firmly linked to the mobility and the quality of life for the European citizens. Figures on mobility of persons and goods give ample evidence; 4% of all persons employed in the EU are in transportation; household expenditure on transport reaches 14% of the income of the European citizen. Just as impressive are the more negative, environment impact figures of transportation on the life of the European citizens. Transportation is responsible for more than 75% of the greenhouse effect in urban areas.

Therefore, the challenge to provide sustainable transport technology is of pressing interest and significant importance. Mobility growth as well as the enlargement of the EU only highlights the European dimension further.
Apart from these challenges there will also be opportunities for the European transport supply industries as a whole to provide long term solutions. Transport technology RTD on a European scale can support sustainable growth for the European economy.

KA4
The revision of the work-programme for 2001 has put increased focus on safety aspects and the new Technology Platform on Friendly Cabin Environment has importance for crew and passenger health and comfort relating both to noise, vibration, air quality and thermal environment. The Technology Platform on Advanced Wing Configuration includes a target of fuel reduction and reduction of aerodynamic external noise.

The key action New Perspectives for Aeronautics involves a high degree of socio-economic related research areas reaching from environmental aspects, via air traffic management to safety aspects. Especially environmental issues are expected to get increased attention in future activities.

MAT
The research on materials is clearly a long-term research. However, through new and improved materials and mainly through bio-compatible materials there is a potential for socio-economic impact in the every day life.

M&T and Infrastructure
In 2000 the workprogramme has been modified towards a clearer presentation in order to specify the strategies and priorities of the remaining calls for proposals in order:

- to adapt where appropriate the definition of the research objectives
- to adapt the Roadmap, and where appropriate the chapter "Programme Implementation"
- to take into account the recommendations from the expert advisory groups, the 1999 monitoring panel and the 5 year assessment panel, the objectives of the European Research Area and the results of the 2nd periodic call

The new version for last 2000 and 2001 calls is meant to apply to:
- the last two periodic calls (publication 15-12-2000 and 01-06-2001)
- the remaining dedicated calls (5th dedicated call for M&T and Infrastructure: publication 15-10-2001+ a possible new one on food safety)
- the continuous open call

These modifications have no major implications for the "socio-economic" message that is given to the reader.

4.2.3. Some conclusions from the IST Programme

The socio-economic research content within the activities of the IST Programme has gained considerably in momentum and weight in the year 2000 as compared to the previous years. The main cause of this very gratifying development has to be seen in the much enlarged range of opportunities for socio-economic research for IST provided through the specific action lines under the Key Actions and the addition of Cross-programme Action 7 (CPA7) entitled Socio-economic Analysis for the Information Society as a means to include perspectives from social, societal and economic sciences on ICTs. CPA7 was open for the first time in the third IST call for proposals.

There is now a portfolio of at least 60 generic socio-economic research projects and accompanying measures respectively (see Annex IST). In addition, some 30 further project contracts of that nature are currently under negotiation and expected to be launched within a few months time.

The topics addressed in these dedicated projects cover a wide spectrum, such as:

- socio-economic impact of ICTs in everyday life e.g. in health, administration, learning, leisure etc. to enhance quality of life, health and safety, social integration ...
- macro-economic models
- studies on changing workflow and roles in the workplace as a result of the growth of the new digital environment and changing behaviours in the home
- Analysis of employability issues with regard to skill development and employment policy and employment through cross-border job creation
- Analysis of the impact of e-commerce on market structures and business models,
- Socio-economic impact and policy implications of new technologies like computer-mediated communication technologies and computer-based rich media
- social inclusion studies with respect to women, geographical regions and the possible role of voluntary groups

During the year 2000, the IST programme has set new accents on the key issues addressed by the eEurope initiative and in the Conclusions of the Lisbon Summit of 23/24 March 2000. These measures have in effect a unique focus on socio-economic issues in connection with the development of the Information Society, and consequently the IST programme of 2000 has widened and strengthened significantly its socio-economic dimension through its close relationship with eEurope.

Progress appears less visible with regard to generic technology research and development projects, which contain embedded socio-economic research elements. Quite often, the chances of success for the commercial application of project results and new technologies depend critically and directly on socio-economic factors, for example usability and acceptability questions which ought to be addressed accordingly. These required socio-economic research elements are however often difficult to assess and might escape immediate visibility in the overall workplans. This would appear as a field for further action, both, in terms of more in-depth analysis of the existing project portfolio, as well as actively fostering co-operation between technology developers and suppliers and social scientists.

4.2.4. Some conclusions from the EESD Programme

- The degree of integration of the socio-economic dimension and of socio-economic research in the ESD programme is variable across the different parts of the programme.
- Certain parts of the programme are directly geared towards socio-economic research.
- Socio-economic issues are the subject of a sub-theme under the generic research activities of the Programme (sub-theme 7.3: *Socio-Economic Aspects of Environmental Change in the Perspective of Sustainable Development*).
- The key action "The City of Tomorrow" has by definition a strong socio-economic character.
- Also, the key action on "Global Climate Change" addresses significant socio-economic issues.
- The results from the second call for proposals show that progress has been made in terms of relevance, quality and focussing of the selected proposals. The funding is a little higher than for the first call in 1999 due to this progress.
- However, the integration of the socio-economic dimension into scientific projects has not been improved substantially. Furthermore the results of the generic activity do not demonstrate a homogenous answer addressing sufficiently crucial issues.
- In these respects, a revision of the work programme has been made during the second semester of 2000 in order to strengthen the socio-economic activity of the programme and to increase its visibility and focus of objectives.
- The socio-economic research outcome has been useful for two important EU policies relative to Climate Change and Sustainable Development ; workshops based on the research results in this area have been organised in order to prepare the background information of the Climate Change negotiations »
- Development of tools and quantitative approaches are subjects of concentrations of efforts for the main environmental issues
- In general, the NON-NUCLEAR ENERGY Programme pursues socio-economic goals by attempting to reconcile economic growth with environmental concerns and to meet social and economic needs.

The socio-economic dimension in the NON-NUCLEAR part of the ENERGY sub-programme is mainly dealt with under the Key Action 6.6 and under the Generic Activities:

- The elaboration of scenarios on supply and demand technologies in economy/ environment/energy (E3) systems and their interactions, and the analysis of the cost effectiveness (based on whole life costs) and efficiency of all energy sources
- Socio-economic aspects of energy within the perspective of sustainable development (the impact on society, the economy and employment).

The projects in this area make the links between energy and environment and address the issues of natural resources, economic growth and social needs. Both market competition and environmental constraints are considered. Top-down and bottom-up approaches are followed. This activity tries also to integrate research in the different EU policies (Environment, Energy, Transport, Cohesion,...).

Among others, the following outputs have been provided by the NON-NUCLEAR ENERGY research projects:

* A medium-long term (2010-2030) European and world reference projection for energy supply, CO2 emissions, energy intensity, etc.

* Quantification of the impact of significant cost and performance improvements in a variety of energy technologies (nuclear, clean coal, gas generation, fuel cells, renewables) resulting primarily from dedicated enhanced investments in R&D for these technologies.

* Assessment of the impact of RTD, energy, and environment policies and measures (Kyoto targets, nuclear phasing out, renewables penetration,...), market instruments (emission trading, green certificates,...) and technologies such as the macro-economic consequences (GDP, employment,...), the marginal cost of emission reduction, the response of producers and consumers, etc. under new conditions (liberalisation of the energy market, enlargement,...).

* Coherent framework for the analysis of "external costs". Evaluation of the damages – coming from the electricity production and from the transport sector - to the natural and built environment, such as effects of air pollution on human health, buildings, crops, forests and global warming. Translation of these damages in monetary terms.

4.2.5. Some conclusions from the Human Potential Programme on the key action on socio-economic research

The key action "Improving the Socio-Economic Knowledge Base" supports a range of activities aiming to improve our understanding of the major structural changes taking place in European societies, to identify opportunities and risks, to assess the feasibility, acceptability and impact of different policy options, and to involve European citizens more actively in shaping their own future.

In the year 2000, the key action has continued to support socio-economic research and related activities devoted to the analysis of societal problems and to the evaluation of the policies tackling them.

Through a combination of RTD projects, research networks, accompanying measures, dialogue workshops, seminars and conferences- this key action has promoted state-of-the-art research in the social sciences, has valorised results of TSER projects, has promoted the dialogue on the role of the social sciences and humanities, has brought socio-economic research closer to citizens, policymakers, non-governmental organisations and business in Europe.

4.2.6. Some conclusions from the INCO Programme

The inherent and at times explicit socio-economic component in the only INCO call this year has resulted in the selection of projects that have a direct or indirect socio-economic dimension. This was also reflected in the specific selection criteria and the background of the evaluators.

4.2.7. Some conclusions from the SME Programme

The SME Specific Measures aim at fostering the participation of SMEs in the 5th Framework Programme. The more SMEs are present in research projects, the higher the socio-economic impact is likely to be, as previous impact studies show that project impact/benefits tend to be higher for SMEs than for any other category of participants. For example, a series of studies by the programme on Industrial Technologies[10] reviewed the expected economic and social impact of finished projects one year after termination and the effective impact on the first projects five year after their termination :

- SMEs are the category who has more frequent benefits : five year after a project was completed 43% of participating SMEs had increased their turnover, 53% had accessed new markets and 42% and created new jobs. While SMEs represented 33% of the sample evaluated, they accounted for 47% of those with increased turnover, 66% of those who accessed new markets and 76% of those who created new jobs.

- Total (direct and indirect) economic impact is smaller for SMEs : while, on average, the average economic impact 5 year after completion is of 12 euro per euro invested in a project, the impact is of 9 euro per euro invested by an SME. This is mainly due to the fact that SMEs have less resources to invest in exploitation after the research is completed.

- A similar trend emerges for CRAFT projects : the expected impact a year after termination is more frequent than for the average project with 82% of projects anticipating the commercialisation of a new product (average is 64%) and 73% an internal usage for boosting competitiveness (average is 59%). However, while on average a project anticipated yielding 10 euro per euro invested by a partner in the project, the anticipated economic return is of 6.5 euro for CRAFT projects.

- Other impacts on SMEs : the report also mentions other, less measurable, benefits for SMEs :
  * In all CRAFT projects and in 65% of collaborative projects, SMEs played a major role
  * 60% of SME partners mentioned other benefits such as new commercial links, improved know-how, increased reputation or better internal organisation.
  * Non-partner SMEs also benefited of technology transfers from 30% of finished projects.

---

[10] *Industrial technologies : impact predicted, impact delivered*, European Commission, 1998 (WWW ***)

5. GENERAL REMARKS FROM THE CO-ORDINATION TEAM

5.1. General remarks (non programme-specific)

5.1.1. What are the main changes for the 2000 edition?

Two main characteristics of the 2000 report are the following:

a. the more detailed coverage of ALL key actions of the specific programmes this year (as opposed to the selected four in the 1999 report);

b. the effort to define more precisely the concept of the «socio-economic dimension» and how this might apply to the different parts of FP5.

5.1.2. General Remarks

- All specific programmes present an improved picture in relation to the integration of the socio-economic dimension in the year 2000. This is partly due to the availability and the motivation of the correspondents of the specific programmes who managed to mobilise their respective services and maintain a good co-operation with the Co-ordination Team of the Human Potential Programme.

- Collaboration with the correspondents made it possible to achieve a satisfactory result with regard to the quantitative aspects of this report. A less satisfactory result was obtained in relation to the more qualitative parts. This is partly attributable to the workload of both the Co-ordination Team and of the programmes' correspondents.

- The participation in proposal evaluations was very useful for the Co-ordination Team. It gave us the opportunity to contribute to the briefings of the evaluators, to hold interesting discussions with them over the nature and quality of the proposals as well as on the adequacy of the evaluation criteria and procedures.

- In the year 2000, the co-ordination team responded to a number of requests from the specific programmes to provide lists of experts with socio-economic expertise in a range of fields for the various needs of the programmes. However, we do not have a picture of how many of these experts were finally "used" by the programmes. It is also difficult for the programmes to provide an accurate figure representing the number of experts with socio-economic expertise that each programme has used. For example, the GROWTH Programme prefers to commission experts having both a scientific/ technical **and a** socio-economic expertise.

- The contributions provided by the specific programmes lead us to the conclusion that the socio-economic dimension is not reducible to the simple addition of an isolated socio-economic research element in a scientific or technological research project. Rather, the question remains open as to the level at which the integration of the "socio-economic dimension" is more appropriate: at the level of projects?

At the level of the key action? At the level of the programme? Does it have to permeate all levels?

- The visibility of socio-economic objectives was higher in the work-programmes of all specific programmes for the year 2000.

- Multidisciplinarity and interdisciplinarity are mentioned as important requirements in all work programmes 2000. However, a review of the proposals submitted shows that the response of the research community was limited. It seems that the conventional segregation of the research community within disciplinary boundaries is still very powerful and that the integration of interdisciplinarity is difficult for proposers.

- The interpretation of the evaluation criteria such as European added value and the assessment of proposals in relation to this criterium remains problematic. Some evaluators suggest that this criterium should be applied and evaluated separately only by Commission staff. This perspective contradicts the "peer review" principle, which is used as a guarantee for neutral and independent evaluation.

- A number of evaluators have faced difficulties in interpreting and assessing the socio-economic dimension of proposals. A reflection of this is that many evaluators have written hardly any comments in the relevant parts of the individual evaluation reports or panel evaluation reports. For evaluators with some background in the social sciences, the interpretation of these criteria seemed to be easier.

- A certain number of proposals show a poor understanding of the socio-economic issues involved in their respective areas and a low awareness of existing socio-economic research in these areas.

- A number of proposals interpret the "socio-economic dimension" quite narrowly in terms of the cost-effectiveness of the technological product aimed at and its viability on the market. Of course in a project geared towards commercial exploitation this may be a realistic approach (although narrow in relation to the goals of the Programme) since cost-effectiveness and market viability are signs of competitive solutions coming out of RTD, and users benefit from competition in terms of more choice, lower prices and new services.

- In the majority of proposals, "innovation" is primarily technically defined, based on application driven solutions. While there is an interesting and valuable range of proposals addressing important needs, there is little evidence that proposers understood the need to consider the socio-economic factors that enable successful innovation. There were exceptions – for example in the area of educational technologies (IST-KA3) -, where innovation was in many cases interpreted as innovation in "pedagogies" as well as in technologies.

5.1.3. Remarks on the follow up of 1999 retained projects

In the year 2000, despite our intention- it was not possible, to follow-up the projects funded as a result of the 1999 calls. Two principal reasons explain this lack:, first, the fact that most projects started rather late in the year , and second, work was not advanced enough to allow us to draw reliable conclusions. These aspects should become a priority for 2001.

5.2. Some Programme-specific Remarks

5.2.1. Some conclusions on the QOL Programme

In the year 2000, a significant improvement has been made on the integration of socio-economic dimension in the programme's activities. A major attention has been given, by scientific officers, to the 1999 report recommendations. The very numerous information and diffusion activities of QOL Programme have set a large place to socio-economic issues. Finally, the real implication of staff members and evaluators have clarified and improved the understanding and interpretation of the relevance criteria (especially with regards to the European added value) during the evaluation process. This element has also allowed a better co-operation with Policy Directorates (Agri, Environment, Health Employment).

5.2.2. Some conclusions on the Growth Programme

The socio-economic dimension has been better integrated in the year 2000 actions of the Programme. Impact on the environment, health and the working environment have been systematically taken into account. The Growth Programme has insisted on measuring the impact of certain actions and on the coherence in relation to other EU policies, including enlargement and transport policy.

5.2.3. Some conclusions on the IST Programme

- The statement of socio-economic objectives is more explicit in all parts of the 2000 IST Work Programme than in the 1999 Work Programme.

- Consideration of social and economic implications is supported as an integral part of each Key Action and is co-ordinated at programme level. In 2000, priority has been given to the consideration of IST implications for employment and economic sustainability of Information Society development.

- The socio-economic content varies across as well as within the different key actions. Some IST key actions and Action Lines have a more obvious relevance to the achievement of socio-economic objectives than others. Depending on the area of application, certain Action Lines are geared more directly to the achievement of socio-economic objectives while in other Action Lines the expected socio-economic benefits are more implicit.

- A number of Action Lines involve socio-economic research.

- Certain action lines with explicit socio-economic relevance that were not open for proposal submission in the first 1999 call were open in the late 1999 and /or in the year 2000 calls[11] (for example, CPA7: *Socio-Economic Analysis for the Information Society*). As a result, the number of proposals with a socio-economic content has increased in late 1999 and in the year 2000.

- In all documentation such as the *Guide to Proposers* and the *IST work-programme 2000,* proposers are encouraged to consider socio-economic aspects and integrate socio-economic research within projects. Also, the Evaluation Manual explains how the evaluation criteria relevant to socio-economic aspects are applied in the evaluation of proposals across all thematic programmes.

- The bulk of proposals are technology development proposals led by industry.

- A number of evaluators have faced difficulties in interpreting and assessing the socio-economic dimension of proposals. A reflection of this is that many evaluators have written hardly any comments in the relevant parts of the individual evaluation reports or panel evaluation reports. For evaluators with some background in the social sciences, the interpretation of these criteria seemed to be easier.

- In the majority of proposals, "innovation" is primarily defined in terms of novelties of technologies and applications, while proposers seem to be less concerned with the need to consider the socio-economic factors that enable successful innovation. Of course, there are many exceptions – for example in the area of educational technologies (KA3), where innovation was in many cases interpreted as innovation in "pedagogies" as well as in technologies.

- A number of experts with some socio-economic background were used in the evaluation of proposals in the late 1999 and 2000 calls. The number of evaluators with some socio-economic expertise in the evaluation panels has varied considerably from one area to another, depending on the nature of the proposals and on the kind of non-technological expertise which was considered necessary.

- Certain panels had a strong interdisciplinary character, and a major part of their expertise covered knowledge of economic, legal, and social issues related to the growth of the digital economy (including, for example, expertise on emerging e-work and e-commerce trends and potential areas of interaction with respect to European policies and ICT developments).

- The IST is primarily a Programme for technological research. However, the requirements for the integration and adequate evaluation of the socio-economic dimension in proposals creates a need for an adequate balance in the synthesis of the evaluation panels so that the latter include social scientists working in the field of technology, ideally, experts possessing expertise in both areas.

[11] For example, action-line2.1.1 on *new perspectives for work and business* which was open in the second call in October 1999.

5.2.4. Some conclusions on the Energy, Environment and Sustainable Development Programme

Socio-economic issues remain at the heart of the EESD Programme in its activity in the year 2000 and the integration of the socio-economic dimension both in research activity and in policy development has been a major concern.

In the year 2000, the EESD Programme has increased its preoccupation with socio-economic concerns through its contribution to two major EU initiatives, namely the European Climate Change Programme and the Sustainable Development Strategy.

6. RECOMMENDATIONS 2000

6.1. General Recommendations

- As part of the commitment to supporting the thematic programmes towards the successful integration of the s-e dimension in their research activity, **the Co-ordination team could play a significant role by providing support to the thematic programmes and individual KAs for an exercise such as the one developed in IST programme on Cultural heritage**. For example, the Co-ordination team can recommend appropriate experts, elements of a methodology for the evaluation, complementary briefing for the experts, support in the drafting of the terms of reference for the experts' contracts and for the drafting of briefing notes.

- The practice of the «Group of Directors» procedure is positive; it involves constructively all the services concerned. It could become common practice for all the specific programmes. This structure facilitates the flow of information between programmes, allows discussion and capitalisation on best practices and promotes the understanding of expectations, needs and difficulties between programmes. The model of the QOL programme could inspire the other programmes, because meetings cover all questions and do not remain limited to the approval of the selected proposals.

- The revision of work programmes and info-packs should become an opportunity for the respective programmes to highlight the importance of and the potential benefits from a better integration of the socio-economic dimension in projects. This implies more and better information to the proposers and an increased effort during info-days organised by the specific programmes and the NCPs (National Contact Points).

- Remaining FP5 calls for proposals in scientific/technological domains should encourage explicitly the adoption of interdisciplinary approaches to research and thus the active involvement of the social sciences research community, towards the overall FP5 objective «to respond to needs of the European Society».

- At a time of intensive effort to implement successfully the ERA and at the same time prepare the next Framework Programme, it is essential that adequate consideration be given to the Communication on the "European Research Area", in particular to its part on the relationship between Science and Society.

- The specific programmes are strongly encouraged to continue to include – and where possible to increase- the participation of social scientists and of experts with an interdisciplinary background in their proposal evaluation panels.

- The specific programmes are strongly encouraged to organise appropriate staff training activities to increase staff awareness of the potential benefits from the integration of the socio-economic dimension and from interdisciplinarity in programmes of technological research (for example: a series of seminars and/or workshops tailored to the needs and specificities of each programme). Such activities will contribute to the development of an appropriate internal "culture" among the

staff responsible for the implementation of FP5, for future FPs and for the implementation of the ERA.

6.2. Programme-specific Recommendations

6.2.1. QOL

The reinforcement of the integration of socio-economic dimension by a wider co-operation with Policy Directorates (Agri, Fishing, Health) would allow a better understanding and acceptability for more medium and long term policies, taking in account future perspectives in some of the most strategic sectors such as genome, bio-informatics or neuro-sciences. The actual effort on information should be continued and even widen in response to the challenges opened by BSE or infectious diseases, or psychological, psychiatric troubles due to ageing. A deeper integration of mobility and training could also give to the programme a more significant impact.

6.2.2. Growth

KA2: Priorities for the December 2000 and June 2001 calls

In defining the strategy and priorities for the December 2000 and the June 2001 calls for proposals, particular attention has been paid to the policy priorities established by the Commission, to the relevant results from FP4 (Fourth Framework Programme) projects and to the first step of FP5 projects within the basic priorities of the key action. Particular importance has been given to the integration, validation, demonstration and assessment of previous project results top facilitate transport policy decision-making and implementation at European, national and local levels. The new approach for the implementation of all KA2 activities will focus on two main elements:

Concentration if a substantial fraction of the key action activities around a core set of Targeted Actions which are designed to facilitate the emergence of solutions with a measurable impact, high profile and direct relevance to EU policy objectives. Targeted Actions integrate multidisciplinary and multi-sectoral activities involving, wherever possible, private-public sector partnerships and end-users from the business, industrial and policy-making sectors;

Identification of a limited number of priorities of strategic importance to the EU, which are to be addressed by proposals related to the topics of the Work Programme.

The CIVITAS Targeted Action is to be opened in combination with the Key Action "Economic and Efficient Energy for a Competitive Europe" of the Energy Sub-programme. CIVITAS requires a co-ordination effort which pursues an integrated approach to the combination of innovative policies and technologies. A Green book on clean urban transport, to which the CIVITAS Targeted Action is linked, is in preparation. The June 2001 call gives special prominence to rail research (SMART RAIL) whilst maintaining the basic key action profile.

6.2.3. IST

The integration of the socio-economic dimension in projects should be continued and the encouragement to proposers in relation to this objective should continue to be clear.

Towards this aim, the involvement of social scientists working in the field of technology and of researchers with interdisciplinary backgrounds in projects should continue to be encouraged.

The effort to increase awareness of the potential benefits from the integration of the socio-economic dimension among the IST Programme managers should be continued.
The participation of social scientists working in the field of technology and of experts with interdisciplinary backgrounds in the panels of proposal evaluators should continue to be encouraged.
A comprehensive socio-economic evaluation of all IST proposals of all key action (similar to the practice established by IST Key Action 3 for proposals in the field of Cultural Heritage) is strongly recommended.

The IST Programme should continue its effort to target the appropriate research communities. It should particularly continue the effort to highlight the opportunities it offers for the involvement of social scientists (who, in the past, have often tented to avoid programmes of technological research).

6.2.4. Energy-environment

Through the use of socio-economic research results by important EU policies, the ESD programme will concentrate its efforts on quantitative approaches which should make it more visible and useful. Very good opportunities are offered to this programme to develop tools and produce results in sensitive and political issues like Sustainable Development and Climate Change.

Other crucial issues like those of the City are fully based on socio-economic research and in this case such a dedicated research is not only very visible but also strategic ; it should cover a wide number of aspects, from qualitative to quantitative ones, from social, institutional and economic dimensions to technological and scientific ones. This activity is very unique and rich in terms of new knowledge.

The levels of contribution of the socio-economic research in the different key actions are quite different if, in principle, the integrated assessment is the same motivation for all of them. Perhaps, a selection of topics in the integrated assessment should have been more operational in terms of results (for example, physical impact of human activity and monetary valuation of them).

Sustainable Development is still calling a lot of economic research which should be combined with scientific aspects and social dimensions. This research should help to make more precise and measurable the Sustainable Development Concept.

A concentration of efforts is so necessary, taking into account all the rich results coming from the key actions components relative to socio-economic aspects.
The generic activity should play its role to provide tools, common definitions and methodological framework.

On the basis of what has been observed in 2000, it could be proposed to address the following priorities for 2001 and 2002:

- strengthening the capacity of technologies foresight; it appears that each thematic programme or key action would need scenario providing a framework of analysis in terms of impacts, sustainability issues, markets, ...
  Capacity of scenario building should provide to such a framework a consistent way compared to overall vision of the future (this last one being provided by the horizontal socio-economic activity). The experiment of Energy and Environment is very fruitful in this context;
- investing in the research about externalities; this area is providing crucial and priority information useful for many policies and good produces in terms of investment choices; concrete examples of energy and transport have clearly demonstrated that results on external costs were directly used for policy making; EU strategy on Sustainable Development will need such information due to the fact that internalisation of external costs should help to implement Sustainable Development. Furthermore, externalities offer the advantage to combine research results relative to technologies, scientific assessment about natural or health damages and economic valuation; in this respect, they correspond to a full exploitation of the different type of research;
- elaborating indicators relative to the research policy or to societal issues where research has a role to play (for example Sustainable Development Strategy, Precautionary Principle, ...). This activity implies that "ad hoc" tools and data base have to be developed and applied according the nature of the indicators. It supposes also that exploitation of these indicators is well organised in order to ensure the usefulness of them for concerned policies and issues;
- exploitation of socio-economic results. Exploitation of results is something which is not spontaneous if nothing is done in terms of dedicated valorisation to well identified policies. Targets in this respect have to be identified taking into account the existing operational input which can be delivered by the research activity. Within this principle, Sustainable Development Strategy could be one of the most appropriated area where socio-economic research can contribute a lot for the full benefit of the strategy. Furthermore, such an input could be combined with other potential inputs in terms of technologies and scientific references which is a way of integration of the different disciplines.

  Other topics of the Science-Society-Citizens should be the first served: application of precautionary principle, risk assessment, governance could also be guides for the exploitation of results.
  But the most challenging and promising initiative which could be taken in 2001 and 2002 (according to the experience of 2000) would certainly be to start to organise an application of the new ERA instrument to the socio-economic research activity. Article 169, networking national programmes, network of excellence and even integrated projects could offer a solution for strengthening and structuring socio-economic research in the EU.