# 8.1. Policy-orientated research

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# A.   Common framework

## 1.   Introduction

**(1) Overall principles and objectives**

The overall objective is to support the formulation and implementation of Community policies, by providing scientific contributions to policies that are targeted precisely on needs ("demand-driven"), coherent across the various Community policy areas, and sensitive to changes in policies as they take place.

Under this part of the programme, research to support Community policies is organised as an integrated activity, according to specific principles which are designed to ensure:

−       timely and effective scientific inputs, covering a wider field of policies than in the past, and with the prospect of improved information, exploitation and uptake of results, at national and EU level;

−       a coherent research base that reflects the increasing integration of Community policies and of the science that underpins them;

−       systematic improvements in the relationship between research and policy at all levels in the EU;

−       development of the European Research Area, by encouraging a single "playing field" in relation to policy-related research.

The activities under this section of the programme are naturally diverse in their subject matter, and will be implemented in such a way as to ensure co-ordination across the various topics and complementarity with the thematic priority areas.

A set of <u>initial research priorities</u> has been defined in the specific programme, on the basis of foreseeable needs, corresponding to an intervention budget of ca. EUR 247,5 million over four years. These initial priorities will be adapted and supplemented during the course of the programme, by means of a programming method that responds to requirements identified by policy makers, taking into account the opinions of the relevant Scientific Committees associated with the policies concerned. An additional allocation, amounting to an intervention budget of ca. EUR 71 million will be available to cover the additional topics so defined.

**(2) Generic aspects of implementation**

Research projects financed under this activity are expected to respond to the specific requirements of the tasks set out under each of the subject headings.

The tasks often involve a requirement to address different disciplinary aspects, in view of the increasingly integrated nature of Community policies (for example a policy concern such as reform of the common agriculture policy will involve not just agricultural issues as such, but also environmental, regional development, social, economic and trade dimensions).

Additional information for each task is provided in part B of 8.1. Detailed task descriptions can be found in the relevant guide for proposers.

## 2.      Links to other research topics

Links exist between some initial priorities under policy-oriented research and the following priority thematic areas of research. Complementarities among projects to be funded will be identified and possible synergies taken into consideration:

−       Life sciences, genomics and biotechnology for health

   −       Advanced genomics and its applications for health.

   −       Combating major diseases.

−       Information society technologies

−       Aeronautics and space

−       Nano-technologies and nano-sciences, knowledge-based multifunctional materials and new production processes and devices

   −       New production processes and devices

−       Food quality and safety

−       Sustainable development, global change and ecosystems

   −       Sustainable energy Systems.

   −       Sustainable surface transport.

   −       Global change and ecosystems.

−       Citizens and governance in a knowledge-based society

## 3.      Implementation plan and related issues

It is envisaged that up to one project will be funded for each task. While projects addressing the different tasks of a given area (as defined under section 8 of the call fiche), or clusters of projects across areas where they exist, will be evaluated together, the ranking of projects will be conducted on a task by task basis. For a given task, the best proposal meeting all the evaluation thresholds will be ranked before any second best proposal for another task. When tasks are subdivided (task x, task x bis, task x ter, etc.), up to one project per subdivision may be funded and co-ordination among the projects selected will be ensured.

## 4.      Roadmap

| Call | publication | closure | areas |
|------|-------------|---------|-------|
| 1 | 17 December 2002 | 13 March 2003 | see call fiche at A.5 |
| 2 | July 2003 | October 2003 | not identified yet |
| 3 | July 2004 | October 2004 | not identified yet |
| 4 | July 2005 | October 2005 | not identified yet |

# 5. Call information

1. **Specific Programme:** "Integrating and strengthening the ERA"

2. **Activity:** Specific activity covering policy-orientated research under "Policy support and anticipating scientific and technological needs"

3. **Call title:** Policy-orientated research

4. **Call identifier :** [1]

5. **Date of publication[2]:** 17 December 2002

6. **Closure date(s)[3]:** 13 March 2003 at 17.00 (Brussels local time)

7. **Total indicative budget:** 149,1 Millions €

| Instrument[4] | €(millions) |
|---|---|
| STREP, CA and SSA | 149,1 |

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[1] The call identifier shall be given in the published version of this call

[2] The director-general responsible for the publication of this call may publish it up to 1 month prior or after its envisaged publication date.

[3] When the envisaged publication date is advanced or delayed (see previous footnote), this deadline will be adjusted accordingly.

[4] STREP = Specific targeted research project; CA = Coordination action; SSA = Specific support action

**8. Areas called and instruments:**

| Areas under priority "Sustainable management of Europe's natural resources" | Tasks | Instruments | Indicative EC contribution (EUR millions) |
|---|---|---|---|
| 8.1.B.1.1.<br><br>Modernisation and sustainability of agriculture and forestry, including their multifunctional role in order to ensure the sustainable development and promotion of rural areas | 1 to 14 | STREP | 18.6 |
| 8.1.B.1.2.<br><br>Tools and assessment methods for sustainable agriculture and forestry management | 1 to 7 | STREP | 10 |
| 8.1.B.1.3.<br><br>Modernisation and sustainability of fisheries, including aquaculture-based production systems | 1, 2, 3, 4, 5, 6, 7, 8, 10 | STREP | 19 |
| | 9 | CA | |
| 8.1.B.1.4.<br><br>New and more environment friendly production methods to improve animal health and welfare including research on animal diseases such as foot and mouth disease, swine fever and development of marker vaccines | 1, 2, 6, 7 | STREP | 7 |
| | 3, 4, 5 | CA | |
| 8.1.B.1.5.<br><br>Environmental assessment (soil, water, air, noise, including the effects of chemical substances) | 1 to 8 | STREP | 17 |
| 8.1.B.1.6.<br><br>Assessment of environmental technologies for support of policy decisions, in particular concerning effective but low-cost technologies in the context of fulfilling environmental legislation | 1 to 5 | STREP | 4.7 |

| Areas under priority "Providing health, security and opportunity to the people of Europe" | Tasks | Instruments | Indicative EC contribution (EUR millions) |
|---|---|---|---|
| 8.1.B.2.1. Health determinants and the provision of high quality and sustainable health care services and pension systems (in particular in the context of ageing and demographic change) | 1, 3, 4, 5, 6, 7 | STREP | 9.1 |
| | 2 | CA | |
| 8.1.B.2.2. Public health issues, including epidemiology contributing to disease prevention and responses to emerging rare and communicable diseases, allergies, procedures for secure blood and organ donations, non-animal test methods | 1, 2, 3, 4, 5, 6, 8 | STREP | 13.3 |
| | 7 | CA | |
| 8.1.B.2.3. The impact of environmental issues on health (including safety at work and methods for risk assessment and the mitigation of risks of natural disasters to people) | 1, 2 | CA | 3 |
| | 3 | STREP | |
| 8.1.B.2.4. Quality of life issues relating to handicapped/disabled people (including equal access facilities) | 1 | STREP or CA | 3.7 |
| | 2, 3 | STREP | |
| 8.1.B.2.5. Comparative research of factors underlying migration and refugee flows, including illegal immigration and trafficking in human beings | 1, 2, 3, 4, 5, 6, 7 | STREP | 3 |
| 8.1.B.2.6. Improved means to anticipate crime trends and causes, and to assess the effectiveness of crime prevention policies; assessment of new challenges related to illicit drug use | 1, 2, 3, 4, 5, 6, 7 | STREP | 5 |
| | 8 | CA | |
| 8.1.B.2.7. Issues related to civil protection (including biosecurity and protection against risks arising from terrorist attacks), and crisis management | 1, 2, 4, 5 | CA | 4.7 |
| | 3 | STREP | |

| Areas under priority "Underpinning the economic potential and cohesion of a larger and more integrated European Union" | Tasks | Instruments | Indicative EC contribution (EUR millions) |
|---|---|---|---|
| 8.1.B.3.1. Underpinning European integration, sustainable development, competitiveness and trade policies (including improved means to assess economic development and cohesion) | 1 to 7 | STREP or CA | 9.2 |
| | 8 to 11 | STREP | |
| 8.1.B.3.2. The development of tools, indicators and operational parameters for assessing sustainable transport and energy systems performance (economic, environmental and social) | 1, 2, 3, 8 | SSA | 7.9 |
| | 4, 6, 7 | CA | |
| | 5 | STREP | |
| 8.1.B.3.3. Global security analysis and validation systems for transport and research relating to accident risks and safety in mobility systems | None | | 0 |
| 8.1.B.3.4. Forecasting and developing innovative policies for sustainability in the medium and long term | 1 to 4 | STREP | 3.4 |
| 8.1.B.3.5. Information Society issues (such as management and protection of digital assets, and inclusive access to the information society) | 1, 2 | STREP or CA | 4 |
| 8.1.B.3.6. The protection of cultural heritage and associated conservation strategies | 1 to 5 | STREP | 6 |
| 8.1.B.3.7. Improved quality, accessibility and dissemination of European statistics | Tasks 1, 2 | STREP or CA | 2 |

**9. Minimum number of participants[5]:**

| Instrument | Minimum number of participants |
|---|---|
| STREP and CA | 3 independent legal entities from 3 different MS or AS, with at least 2 MS or ACC. |
| SSA | 1 legal entity from a MS or AS |

**10. Restriction on participation:** None.

**11. Consortium agreement:** participants in RTD actions resulting from this call are not required to conclude a consortium agreement.

**12. Evaluation procedure:**

• The evaluation shall follow a single stage procedure.

• Proposals will not be evaluated anonymously.

**13. Evaluation criteria:** See Annex B of the work programme for the applicable criteria (including their individual weights and thresholds and the overall threshold) per instrument.

**14. Indicative evaluation and contractual timetable:**

• Evaluation Results: Considering the wide scope of policy-oriented research and the need to ensure coherence with thematic priorities of the work programme, evaluations will be carried out at various dates and the results are not expected to become available earlier than May 2003.

• Contract signature: it is estimated that the first contracts related to this call will come into force before the end of 2003.

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[5]   MS = Member States of the EU; AS (incl. ACC) = Associated States; ACC = Associated candidate countries.

Any legal entity established in a Member State or Associated State and which is made up of the requested number of participant may be the sole participant in an indirect action.

# B.  Initial research priorities

## 1.  Sustainable management of Europe's natural resources

> *1.1.  Modernisation and sustainability of agriculture and forestry, including their multifunctional role in order to ensure the sustainable development and promotion of rural areas*

### Policy context

The Agenda 2000 reform of the Common Agricultural Policy (CAP) identifies specific challenges that research can contribute to address: improve food safety and reinforce consumer confidence; further develop the multifunctional model of agriculture in Europe, first of all by quantifying externalities surrounding agricultural production with respect to issues such as environmental protection, rural development, nature conservation and socio-cultural interactions; lay down the scientific foundation of a coherent and sustainable framework for integrated rural development; provide scientific evidence and justification to further develop EU positions in international fora such as WTO, OECD and FAO.

Research activities under Priority 5 'Food Quality and Safety' and Priority 6 'Sustainable development, global change and ecosystems' will also contribute to the fulfillment of the objectives of Agenda 2000.

### Research in support of international negotiations: improved tools for forecasting and assessment of international agriculture policies and markets, and related agreements

Trade and environmental agreements and the creation of free-trade areas have a tremendous impact on the European agricultural sector, as the biggest trade partner in the world, and consequently influence the CAP. Discussions and the settlement of disputes in international fora like WTO require scientific support. Farm policies of major trade partners need scientific analysis paying special attention to their support schemes in favour of agriculture and trade barriers for agricultural products.

Research activities will focus on supporting the development of the Model of European Agriculture (MEA) within the globalisation process.

*First call tasks*

−   **(Task 1) Trade Agreements:** to develop tools and methologies for the analysis and the comparison of regional, bilateral and multilateral trade agreements of the EU in the agricultural sector; research should support the comparison of the different degrees of openness of industrialised countries toward developing countries, as well as the comparison of average EU tariffs agreed in the multilateral context (WTO) and average EU tariffs applied in different regional agreements.

−   **(Task 2) Impact of Environmental Agreements on CAP**: to assess the impact on European agriculture and rural development as well as on CAP, of

international environmental agreements, such as the UN Convention on Biological Diversity, the UN Framework Convention on Climate Change, the Treaty of Montreal. All topics/analyses should include Candidate countries.

- **(Task 3) Trade and market policies for agriculture in Mediterranean countries**: to analyse agricultural sector and related policies in the Mediterranean countries (Malta, Turkey, Morocco, Algeria, Tunisia, Egypt, Cyprus, Lebanon, Libya, Syria, Israel, Gaza Strip and West Bank, Jordan) in order to evaluate the potential impact that future trade liberalisation with these regions and with the single countries may have on the EU agricultural sector given their strong competitive position and production potential as regards agriculture, and to the countries themselves.

- **(Task 3 bis)** Idem for Mercosur countries (Argentina, Paraguay, Uruguay, Brazil, Bolivia and Chile).

- **(Task 4) Article XXIV.6 GATT Negotiations for CEECs-10 Accession on Agricultural Products**: to develop and analyse a tariff and trade database, building on the project carried out by Eurostat and the Commission, to have all necessary elements for the future Article XXIV.6 GATT negotiations for EU enlargement, for agricultural products.

## *Indicative tasks for further calls*

- **Agricultural Policy Instruments**: to analyse agricultural policy instruments (e.g. direct payments, export subsidies and credit, State Trading enterprises, rural development policies) and food policies in Mediterranean and Mercosur countries (quality standards, traceability etc).

- **Mediterranean Trade:** to analyse the impacts on the Mediterranean Partner countries and EU Member States in order to pave the way for progress in the negotiations on the agricultural chapter of the future free trade area agreement around the Mediterranean Sea by the year 2010. . Research is needed on short-term adjustment costs and social impact with a specific emphasis in different sectors, local impact and trade liberalisation and poverty.

- **Geographical indications**: to improve the protection of geographical indications for agricultural products in the WTO Doha negotiations.

## Multifunctionality of agriculture and forestry

The concept "Multifunctionality of Agriculture" is a key component of the MEA, which requires being further developed and operationalised as a policy instrument by building on quantified joint production aspects and externalities surrounding agricultural production, with respect to issues such as environmental protection, rural development, nature conservation or socio-cultural interactions.

Research activities will aim to develop a policy model, based on microeconomic theory, related to a specific farming, forestry or mixed system, and taking into account broader issues such as spatial characteristics, scale, scope and employment.

## *First call tasks*

- **(Task 5) Developing further the multifunctionality concept and making it operational as a policy instrument:** to analyse and further develop the

various interpretations of the multifunctionality concept, and to make it operational as a policy instrument for a specific farming, forestry or mixed system by building on relationships between commodity and non-commodity outputs and externalities surrounding agriculture and forestry, with respect to issues such as environment, rural development, nature conservation or socio-cultural interactions, taking into account issues such as spatial characteristics, scale, scope and employment.

## *Indicative tasks for further calls*

– **Development of optimally targeted policies and instruments for stimulating multifunctionality:** to analyse actual and likely future impacts on farm income and wealth, environment and rural development of stimulating multifunctionality, and develop corresponding targeted policies and instruments; to analyse the transaction costs of creating market mechanisms for the provision of public goods in agriculture and forestry, and to analyse payment mechanisms compatible with WTO green box definitions.

## CAP reform: improved tools for forecasting and assessment of the common agriculture policy

Research activities will help completing the impact assessment of the measures proposed in the Mid Term Review of the CAP (adjustments of the market policy tools for cereals and for some other products, extended cross-compliance for coupled and decoupled direct payments, strengthening rural development) and examining the options for sectors to be reformed in the coming years. In addition to data processing and analysis, new or more accurate tools and methods should be developed.

## *First call tasks*

– **(Task 6) Decoupling- Development of various tools and methods for the impact assessment of decoupling:** to develop tools and methods in order to provide a comprehensive assessment of the socio-economic impact of decoupling on the EU farm sector. The environmental and economic implications of set aside and cross-compliance need to be taken into account in the socio-economic impact assessment.

– **(Task 7) Market Sectors – Development of modelling tools for the analysis, projections and market policy simulations:** to develop modelling tools in order to provide solid economic analyses for carrying out annual market projections over a medium-term perspective and to simulate the impact of alternative policy scenarios for dairy products.

– **(Task 7 bis)** Idem for wine sector.

– **(Task 7 ter)** Idem for fruit and vegetables sector (e.g. tomatoes and citrus fruit).

– **(Task 8) Impact Assessment of CAP Reform for Rural Economies:** to develop tools to evaluate, in the light of reform of the CAP and the on-going shift from a production to a consumer focus, effect of agricultural policy changes on rural economies, communities and landscapes, and the maintenance of vibrant rural communities; to analyse the potential of and constraints to the development of producer organisations, or other

organisations, which aim at adapting agriculture to new policy frameworks; to identify key factors facilitating or hindering adaptation.

−  **(Task 9) Cross Compliance:** Analysis of compliance with present mandatory EU standards at farm level; develop methologies in order to assess the impact of EU standards on the external competitiveness of European agriculture.

−  **(Task 10) Micro-Economic Modelling of Spatial and Environmental Impacts:** to develop various modelling tools in order to define and quantify the effects of the measures of the Common Market Organisations on the spatial and economic development of rural areas and on the environment; to develop simulations and scenarios for the evaluation of the effectiveness of these measures.

*Indicative tasks for further calls*

−  **Agri-Environment:** to develop concepts and methodologies to better link agriculture and environment models, final aim being to model the relationship between agriculture and environment.

−  **Spatial Analysis:** to develop quantitative tools based on spatial and temporal series, and to validate them by confrontation with other landscape analysis methods, such as geographical and geomorphologic landscape analysis.

## Sustainable development of rural areas: characterisation of rural entities, and related drivers of change for assessment of rural development and to provide tools to support environmental impact assessment

Agenda 2000 implies a considerable overhauling, streamlining and consolidation of rural development policy, becoming the second pillar of the CAP. Moreover it explicitly established economic, social, and environmental objectives (explicitly required in the Treaty of Amsterdam) as the three elements of Sustainable Agriculture and Rural Development.

Research activities will contribute to assess sustainable agriculture and rural development, strike the right balance between the economic, social and environmental dimensions, and focus on characterisation of meaningful spatial entities, landscapes and drivers of change.

*Tasks for the first call*

−  **(Task 11) Analysing conceptual aspects of sustainable and integrated rural development:** to analyse the efficiency of current and potential means to implement rural development policies (such as the Community system financed by the EAGGF Guarantee Section); to analyse the extent to which management systems involving a partnership-based approach contribute to the implementation of the rural development policy.

−  **(Task 12) Ex-ante policy assessment of CAP**: to develop tools and methodologies in order to evaluate ex-ante intervention measures covering all EU Member States (baseline description, forecasting, monitoring and evaluation of projects, measures, programmes, and policies), including those related to the improvement of agricultural structure. Research will identify, at

the regional level, the effects of EU policies, and in particular the CAP, on income, employment, production structure, production intensity, and land use. A second specific objective would be to integrate tools for environment and landscape assessment or, where appropriate, elaborate the interface between such tools.

- **(Task 13) Developing the entrepreneurial skills of farmers:** to identify and analyse the social, economic and cultural factors, including educational processes holding back farmers from the development of entrepreneurial skills necessary for the successful growth of their farming businesses. The main aim is to understand behavioural and cultural problems at the level of the individual.

- **(Task 14) Improving the economic relationships along the food chain:** to identify and analyse the social, economic and cultural factors impeding communication and sustainable economic relationships between producers, processors and retailers, necessary for the longer-term stability of food commodity markets in the framework of a CAP with decreasing recourse to market intervention measures.

## *Indicative tasks for further calls*

- **Analysing external drivers of change in rural areas:** to analyse the relationships between regional, urban and rural policies, and between social (including social exclusion issues), economic and environmental policies, taking into account the effect of restructuring of the global economy; trade liberalisation; market reorganisation / diversification in agriculture (tourism, on-farm processing etc). To identify the role and potential of new information and communications technologies for the development of rural economies.

- **Encouraging collective marketing initiatives in farmer groups:** to identify and analyse the social, economic and cultural factors limiting farmers' ability to pool ideas, experience and capital in the development of co-operative producer organisations and marketing skills necessary for ensuring their market share in an agri-food sector increasingly dominated by large players. Such research should include substantial case study work and other appropriate techniques for understanding problems at the level of producer groups.

## Policy context

As set out in Agenda 2000, developing forms of agriculture which are both ecologically sound and economically viable will require new and powerful tools and assessment methods for the management of European agriculture and forestry, which can further the understanding on how to increase the autosufficiency of agricultural production systems.

## Sustainable agriculture production systems: development of a basis for policies to promote sustainable, quality-based agriculture production systems, including non-food agriculture, and their interactions

Agenda 2000 envisages enforcing "good farming practices" and responding to growing public concerns through mandatory standards for environment, food safety, animal welfare and occupational safety. The full granting of decoupled farm income payment will be conditional on the respect of these standards.

Research activities will focus on improving sustainable, quality-based crop and animal production systems (including non-food products and uses) and developing techno-economic references to support the EU legislation.

*First call tasks*

−    **(Task 1) Agro Environmental Schemes:** to improve the reliability and predicatability of agro-environmental schemes. Research should, on the basis of a set of agro-environmental schemes, develop new tools and hypotheses for improved explanation and prediction of scheme results and externalities, and of important socio-economic aspects of implementation (problems of uptake, of implementation). Where possible, the new approaches should be tested by monitoring the progress in real time of real or model schemes. Testing may also require baseline studies and data sets for objective estimates (before, after) of the actual results.

−    **(Task 2) Genetically modified organisms in agriculture:** to develop whole-system measures of socio-economic and ecological effects, and biological indicators for, notably, total traceability of GM adventives in the countryside, consequential effects on biodiversity including gene transfer, changes in indicator species, recommendations for possible mitigation measures. Research should focus on specific cases of high potential risk, which are chosen for their agricultural relevance. Strategies for an effective long-term monitoring of potential environmental effects of released GMO (e.g. on larger cultivation sites for genetically modified crops) should be an integrated part of the measures.

−    **(Task 3) Non-Food Crops:** to use available research data to evaluate the true market and economic prospects for industrial renewable materials with respect to production and processing costs and current legislation. Ways to integrate non-food crop production with traditional food production systems and to consolidate the industrial need with the agricultural supply and the

needs of rural communities are sought. Furthermore the energy and environmental balance of the production of these crops and the conditions for their economic profitability must be assessed.

– **(Task 4) Revision of the regulation on organic agriculture:** to enhance the co-ordination of research in support to the implementation at farm level of the legislation on organic agriculture (use of plant products in the annex, specific issues of animal welfare, co-existence with conventional agriculture)

– **(Task 5) Replacement for Copper Fungicides in Organic Agriculture:** to develop new organically based fungicides (potentiators of resistance) or beneficial organisms or integrated management systems for diseases in line with Council Regulation (EEC) No 2092/91 on Organic Agriculture that requires replacing copper fungicides.

– **(Task 6) Environmental Indicators for Pesticide risks**: to further develop "environmental indicators" which indicate the overall risk of pesticides to the environment and to validate the "indicators" approach; to develop methods for predicting environmental fate, for extrapolation from test animals to humans or wildlife; to evaluate significance and prediction of sub-lethal effects.

– **(Task 7) Quarantine pests and pathogens:** to develop molecular diagnostics for quarantine pests and pathogens, including airborne inoculum, in order to allow rapid and accurate detection on site and at ports of entry; to conduct pest risk analysis of given organisms: notably Pinewood nematode and Phytophthora ramorum (sudden oak death, new mating type/new isolate); to improve the understanding of the dynamics and the epidemiology of particular organisms, as a basis for legislative action.

## *Indicative tasks for further calls*

– **Traceability**: to identify indicators needed to support the implementation of legislation. Advanced systems of ensuring traceability, including database work.

– **Land Use:** to develop methodology and indicators of good soil quality and adverse environmental impact; and refinement of models used in land-use scenario studies.

– **Biodiversity**: to develop and apply tools to determine the relative biodiversity within and between EU local breeds of animal; to develop and apply tools to determine the useful characteristics of crop germplasm conserved in the EU.

– **Disease Resistance:** to develop management plans for pest- and pesticide-resistant crop varieties in order to avoid the build-up of resistance and thereby reduce the usefulness of such varieties. In some specific cases, underpinning research on which management plans can be based will need to be carried out.

## Sustainable forestry

Forests and their diversity are an important part of the European natural environment and their protection and conservation fall within the scope of a number of Community

policies and international agreements. They are also the basis for an economically important industrial sector in the Union and for the development of rural areas. Research activities will not only analyse the various social, ecological and economic aspects of forest policies in the Member States and Candidate countries, but will also take into consideration their relation to the CAP, land use policies and rural development.

## *First call tasks*

No task will be launched under the first call.

## *Indicative task for further calls*

RTD efforts will focus, at EU level, on scientific support for the development, implementation and evaluation of policies to further promote sustainable forestry management and development in Europe, taking into account Community policies and goals towards sustainable rural development.

The objectives of research will be to examine new modes of governance in forest policy-making, which aim at resolving legitimate, but sometimes conflicting economic, ecological and social interests in forests. This will involve the evaluation of participatory approaches, inter-sectoral policy co-ordination beyond the forest sector and multi-level co-ordination (i.e. at the EU, national and regional levels). Strategies should be evaluated to optimise the multipurpose functions of forests and the potential of forests and forest-related SME's to contribute to rural development in different parts of Europe, and the possibilities for integration and co-existence of the different forms of utilisation.

While contributing to the EU's approach to rural development, this research should contribute to the further utilisation and development of the full potential of forests in order to produce renewable and environmentally friendly products, nature protection, energy and services such as erosion control, recreation and tourism.

## 1.3 Modernisation and sustainability of fisheries, including aquaculture-based production systems

## Policy context

In its proposal for a new framework regulation on the Common Fisheries Policy (CFP), the Commission has defined the scope of the CFP as being to ensure exploitation of living aquatic resources, which provides sustainable environmental, economic and social conditions. The main objectives can be summarised as:

− Responsible and sustainable fisheries and aquaculture activities that contribute to healthy marine ecosystems,

− An economically viable and competitive fisheries and aquaculture industry,

− A fair standard of living for those who depend on fishing and aquaculture activities.

Research activities will focus on improving the scientific basis for fisheries management; support aquaculture by promoting disease prevention and sound environmental protection, integrating environmental requirements into the CFP, and investigating the economic dimension of sustainable fishing and aquaculture.

Further linking of the European fishery and aquaculture research institutes in joint research activities will be promoted in order to strengthen their current networks and facilitate research activities that will integrate and underpin the European Research Area in this field.

## Scientific basis of fisheries management

Some exploited stocks in European waters are at historically low levels. To recover the stocks and promote sustainable fisheries it is necessary to obtain improved scientific advice on medium- and long-term effects of different management tools. Management methods should be explored and evaluated to identify and resolve deficiencies through better understanding of key biological parameters, exploitation patterns and socio-economic implications.

Enhancement of technical measures like introducing more selective fishing, reduction of discards at sea, measures to protect non-target species, and habitats will rely on new scientific discoveries and developments.

*First call tasks*

− **(Task 1) Operational evaluation tools for fisheries management options:** to develop operational evaluation tools to appraise the biological and social and economic effects of management measures in the EU, and apply these tools to important groundfish, deep-sea and pelagic fisheries. The tools must take account for uncertainties and should include risk assessments.

− **(Task 2) Operational fishery-independent assessment tools:** to develop operational assessment models not dependent on fishery data and related survey tools and methodologies, and test these for important management procedures for groundfish and pelagic stocks. The models must take account for uncertainties and should include risk assessments.

- **(Task 3) Operational multi-annual management methodologies:** to provide operational scientific and methodological support for multi-annual management strategies and evaluation of harvest rules, including from a socio-economic perspective.

- **(Task 4) The relationships between fleet capacity, fishing effort and fishing mortality:** to quantify the relationships between fleet capacity, fishing effort and fishing mortality in order to ensure coherence between effort restrictions, fleet policy and stock management measures.

- **(Task 5) Species-selective fishing in nephrops fishery:** to develop low-impact, species-selective fishing gears and to formulate alternative fishing tactics in order to reduce undesired impacts on non-target species. To estimate the socio-economic effects of application of the measures suggested.

- **(Task 5 bis)** Idem in pelagic fisheries involving cetaceans by-catch

  Task 5 and 5 bis should be preferably but not necessarily combined into one project.

## Scientific basis of fisheries monitoring, control and surveillance

Monitoring, control and surveillance constitute a main part of the day-to-day execution of the CFP. The implementation of the Vessel Monitoring System (VMS) has provided the ground for more cost efficient methodologies to be developed. Relevant research should aim at improving the accuracy and consistency of fisheries catch data, especially in the context of growing doubts about the performance of catch reporting systems and of traditional assessment and management systems.

### *First call tasks*

- **(Task 6) Operational, cost-effective and secure electronic logbook transfer system:** to develop an operational, cost-effective and secure electronic transfer system that will convey logbook information to and between authority agencies in order to facilitate improved monitoring and control.

### *Indicative tasks for further calls*

- **Catch estimation models:** to develop an operational catch estimation model to forecast catches from VMS (Vessel Monitoring System) data, observer reports and present and historical fishery information, in order to make prognoses on the degree of TAC fulfilment and potential discarding.

## Sustainable aquaculture production

Research on aquaculture in support of the CFP should provide the scientific basis for sustainable aquaculture production by promoting disease prevention and a sound environment protection.

Aquaculture activity and its environmental interactions, as well as fish and shellfish health aspects, are important policy issues, which will need to be addressed. Increasing scientific knowledge on the effect of aquaculture on the structure and functioning of marine ecosystems (including non-commercial species) as well as the effects of environmental hazards on these activities has to be based on innovative research in this field.

- **(Task 7) Assessment and mitigation of the influence of husbandry and environmental conditions on health of farmed species:** To improve the health, welfare through reduced stress and improve immune competence of major important commercial species (salmon/rainbow trout and seabass/seabream).

*Indicative tasks for further calls*

- **Development of functional genomics to identify suitable source strains for disease and stress resistance:** To provide the physiological and genetic basis for direct or marker assisted selection breeding for oysters, seabass and seabream (Salmon may be addressed taking into account the latest developments for this species).

- **Potential exchange of pathogens between wild and farmed species:** To establish a co-ordination action that will integrate current knowledge on the potential exchange of pathogens between wild and farmed species, and that will promote collaboration among on-going projects and identify future research needs.

- **Genetic impact on native populations:** To establish a co-ordination action that will integrate current knowledge of genetic impact of escapees (accidental or restocking), quantitative and qualitative genetic modifications, introduction of non-native species and recombinant DNA vaccines on native populations. Will promote collaboration among on-going projects and identify future research needs.

## Integration of environmental requirements into the CFP

The requirement to integrate environmental issues into Community policies as stipulated under Article 6 of the Treaty is reflected in the CFP reform[6], where the Commission is promoting the progressive adoption of an ecosystem-based approach to fisheries management.

Two aspects are of special relevance for research: the better understanding of structure and dynamics of marine ecosystems, including their response to the impact of human activities, and the development of operational protocols and procedures in order to improve scientific advice to fisheries management.

From this perspective, three main topics will be addressed: the problem associated to critical biological interactions between and within target species and by-catch species, the development of methods to assess the impact of fishing and aquaculture on the marine ecosystems, and the use of area-based fishery management tools.

In all cases, indicators of the environmental performance of the CFP will be identified and developed and their utility investigated in order to monitor progress towards a more complete implementation of the ecosystem approach.

*First call tasks*

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[6] COM(2002)186 final – setting out an Action Plan to integrate environmental protection requirements into the Common Fishery Policy; COM(2001)143.

- **(Task 8) First steps towards developing an ecosystem-based approach to fishery management:** to identify and characterize critical biological interactions between and within target species and by-catch species (both commercial and non-commercial) and their dependence on the environment.

- **(Task 9) Developing indicators of environmental performance of the CFP:** to identify quantitative indicators for the impact of fishing on the ecosystem state, functioning and dynamics, to assess the applicability of such indicators and to develop operational models with a view to establishing the relationship between environmental conditions and fishing activities.

- **(Task 10) Potential of marine protected areas for marine environmental protection:** to investigate the potential of different regimes of protected areas as measures to protect sensitive species, habitats and ecosystems from the effects of fishing.

## *Indicative tasks for further calls*

- **Developing an ecosystem-based approach to aquaculture:** to develop operational tools with a view to a progressive implementation of an ecosystem-based approach into the management of the aquaculture sector. This will include the identification of quantitative indicators relative to the effects of aquaculture on the environment and vice versa.

**Policy context**

The EU animal health policy has been developed with the aim of reaching, and maintaining, high animal health and welfare[7] standards, which are fundamental to ensuring the production of safe foods, addressing increased consumer concerns about livestock husbandry systems and supporting the ability to export to third countries.

It revolves around:

−   diseases not normally present within the EU and that cause severe economic loss;

−   diseases that are present within the EU, but that may still impact on productivity and trade, and in some cases can be transmitted to humans; and,

−   animal welfare.

Similarly, detailed and harmonised Community legislation is in place covering animal health aspects of aquaculture.

## Research to support the development of policy in the field of epizootic disease (mammals, poultry, fish and shellfish).

The control of epizootic animal diseases is based, to a large part, on the protocols established in the international animal health codes of the Office International des Epizooties (OIE). These diseases are important in trade, and disease control has traditionally involved mass slaughter in the face of an outbreak in order to protect markets. There is a need to strengthen and improve our understanding of these diseases in order to establish more modern and ethically acceptable, and less costly, means of control and to adjust policy accordingly.

There is a need for support of epidemiological studies of OIE International Animal Health Code list-A diseases. As these diseases are, by definition, foreign to the EU, there is also a need to make full use of the expertise within the Community by strengthening competencies and networking aimed at the reduction of fragmentation between research centres, reference laboratories and other stakeholders. The reduction in fragmentation will contribute to the strengthening of the European Research Area and improved disease control will make production systems more sustainable and complement research under Priority 5 (Food Quality and Safety).

*First call tasks*

−   **(Task 1) Improved methods of control of foot and mouth disease in livestock:** to improve epidemiosurveillance and control methods and hence

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7   The European Community and Member States "when formulating and implementing the Community's agriculture, transport, internal market and research policies … shall pay full regard to the welfare requirements of animals" (Protocol on protection and welfare of animals annexed to the Treaty of Amsterdam)

the policy for the control of foot and mouth disease (FMD). This will involve the production of marker vaccines and corresponding discriminatory diagnostic tests for FMD.

- **(Task 2) Improved methods of control of classical swine fever in livestock:** to improve the control methods and hence the policy for the control of swine fever (CSF). This will involve the production of marker vaccines and corresponding discriminatory diagnostic tests for CSF and the production of an effective, orally active marker vaccine for use in wild boar.

- **(Task 3) Reinforcement of the European networks of Community and national reference laboratories and other key research laboratories for infectious diseases included in list-A of the OIE:** to improve disease management tools by adapting them to the latest scientific developments and production systems, strengthening in particular the European effort on OIE list – A diseases, principally FMD, CSF, African Swine Fever, Swine Vesicular Disease, Avian Influenza, and Newcastle Disease.

- **(Task 4) Reinforcement of the European networks of Community and national reference laboratories and other key research laboratories for infectious diseases of farmed aquaculture species:** to improve disease management control tools by adapting them to the latest scientific developments and production systems.

*Indicative tasks for further calls*

- **Viral haemorrhagic septicemia in farmed and wild species:** to develop and validate diagnostic tools allowing discrimination between VHSV according to their pathogenicity for marine and freshwater species; risk analysis of disease transfer between marine and freshwater species; mechanisms of host-pathogen interaction responsible for infectivity.

- **Improved methods of control of avian influenza in livestock:** to improve the control methods and hence the policy for the control of avian influenza (AI). This will involve the production of marker vaccines and corresponding discriminatory diagnostic tests for AI. It will also involve improving epidemiosurveillance in order to adapt vaccines to field virus.

- **Pen-side diagnostic tests using new and emerging technologies:** to develop diagnostic tests aiming at maximising early detection, specificity, sensitivity, rapidity and simplicity. The ultimate aim would be to allow pen-side use on farms and in slaughterhouses and, in the latter, integrating tests with those for food-borne diseases.

- **Development of prevention and control strategies for areas of densely populated poultry production:** to develop methods to identify densely populated poultry areas and the new tools to reduce the risk of disease in such areas.

## Research to support the development of policy in the field of enzootic and emerging diseases

Infections that are enzootic in European farm animals (including aquaculture) still have an impact on the productivity and welfare of those animals. Data are needed in order to formulate reliable policies for the control of these infections, whether these

are aimed at reducing, eliminating or tolerating the disease. Many of these diseases are multifactorial in nature and environment can play a major impact on the development of clinical signs. In some cases the precise cause remains unknown.

Research on zoonotic disease will have direct impact on food safety and quality and, thus, also complement research under thematic priority 5 (Food Quality and Safety) of the Framework programme.

*First call tasks*

- **(Task 5) Improved diagnosis and epidemiology for mycobacterial diseases:** to develop an enlarged network of laboratories researching into veterinary aspects of mycobacterial diseases to include the Candidate countries.

*Indicative tasks for further calls*

- **Epidemiology and early pathogenesis of porcine circovirus disease:** to improve understanding of the aetiology of porcine circovirus-related diseases (particularly Postweaning Multisystemic Wasting Syndrome), and the development of diagnostics.

- **Risk assessment for iridoviral diseases of farmed and wild fish populations:** to assess level of risk and consequences of the introduction of iridoviral diseases in fish stocks.

- **Diagnosis, epidemiology and host-pathogen interactions for perkinsosis**: to improve disease management tools.

## Research to support the formulation and upgrading of specific policies on animal welfare

There is growing support for the development of more welfare-orientated production systems and, as a corollary, the Commission finds itself in the position of assessing welfare when formulating policies. There is a need, therefore, to ensure that there are solid scientific data available to underpin policy development. With new farming systems being developed, there is a need for the adaptation of animal husbandry techniques and of genetic lines and breeds to current and future farming systems (including organic systems). There is also a need for the specification of environmental requirements for farm animals (including aquaculture), in particular in relation to the availability of living space and social environment (including interactions with humans) for farm animals.

As well as supporting policy, improved welfare will also lead to improved and more sustainable production methods and complement research in Priority 5 (Food Quality and Safety).

*First call tasks*

- **(Task 6) Welfare implications of surgical castration in pigs:** to develop techniques and systems of pig production and meat processing which would be likely to reduce the need for surgical castration.

- **(Task 7) Welfare implications of changes in production systems for laying hens:** to optimise rearing systems, in particular enriched cage systems, for laying hens.

*Indicative tasks for further calls*

– **Consequences of increased selection on production for welfare:** To quantify the effects of increase selection of animal breeds for increased production on the welfare of animals.

– **Evaluation of living space and social environment on farm animals:** To quantify the effects of changes in living conditions, particularly space and social environment, on animal welfare, especially in relation to conditions resulting from newer farming systems.

– **Effects of environmental enrichment on microclimate:** To quantify the effects of changes in environment, especially in terms of methods of enrichment, on the microclimate surrounding the animals.

– **Impact of organic husbandry systems on welfare of animals:** To quantify the effects of moves to increase organic food production on the welfare of animals, particularly with respect to the outside rearing of animals and restrictions in the use of veterinary medicines.

## 1.5. Environmental assessment (soil, water, air, noise, including the effects of chemical substances)

## Policy context

The proposed research will contribute to the implementation and development of 6th Environment Action Programme, the Kyoto Protocol, the fuel directive on petrol and diesel, the air quality policy, the noise policy, the soil strategy, the waste policy, the Sewage Sludge Directive 86/278/EEC and the Water Framework Directive Common Implementation Strategy (2000/60/EC). Additionally, the research will contribute to the elaboration of the future Directives for the management of waste of selected electrical and electronic equipment and on the restriction of the use of certain hazardous substances during their manufacturing. The proposed research will also contribute to European Community Biodiversity Strategy and sectoral action plans, the Birds directive and the Habitats directive, and the European Climate Change programme.

## Research objectives

The research objectives are: to quantify, through appropriate analytical tools and in an integrated manner the economic and environmental effects of carbon sink enhancements; to assess the fuel and emission standards for vehicles, to assess the air quality at different scales on the basis of monitoring data and modelling; to better assess noise and noise impacts from railways, roads and aircraft; to assess organic pollutants in sewage sludge; develop standards for soil, biowaste and sewage sludge; to provide necessary, adequate and sound information on substances (already regulated or to be regulated) and their effects; it aims also at the harmonisation and/or standardisation of sampling, screening and testing methods in support the Common Implementation Strategy of the Water Framework Directive.

### *First call tasks*

- **(Task 1) Quantify in an integrated manner the economic and environmental effects of greenhouse gas emissions and carbon sink enhancements in agriculture and forestry**: to develop an analytical tool to assess economic and environmental effects for enhancing carbon sinks in agriculture and forestry.

- **(Task 2) Assessment of air quality in Europe at different temporal and spatial scales (e.g. local, urban) on the basis of monitoring data and modelling, including the distinction between the anthropogenic and non-anthropogenic contribution**: to assess the benefits and drawbacks of the different methods for assessing air quality (including their variability and uncertainty) at different temporal and spatial scales

- **(Task 3) Improving current assessment of environmental noise and noise impacts from railways, roads and aircrafts:** to develop harmonised models for the assessment of environmental noise, either by computation or by measurement

- **(Task 4) Increase the environmental safety of the use of biodegradable waste on soil**, including the development of harmonised sampling, analytical methods and analytical standards for selected organic compounds, especially

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if persistent and bio-accumulative: to review existing and develop new analytical and sampling standards for organic compounds present in waste.

–  **(Task 5) Contribution to prevent the deterioration of the water status and ensure the achievement and maintenance of the good status of surface and ground waters (WFD) through studying the relationships between ecological and chemical status of surface waters**: to establish relationships between the chemical and ecological status of surface waters in order to link the deterioration of the ecological status to well identified chemicals.

–  **(Task 6) Harmonisation and/or standardisation of sampling, screening and testing methods in support of the Common Implementation Strategy of the Water Framework Directive, including the testing validation, and harmonisation of existing and new field methods through laboratory-based and field interlaboratory studies, in particular of low-cost screening methods (WFD):** to develop quality control tools for validation and comparison purposes of screening methods.

–  **(Task 7) Assessment of the impact on the environment of selected electrical and electronic equipment** in order to develop environmental performance indicators, including the assessment of the environmental impact of personnal computers: to support the development of environmental performance indicators in the ICT sector and possible regulatory limit values for personnal computers.

–  **(Task 8) Development of methods to assess the impacts of specific sectoral Community policy instruments on biodiversity**, including the development of scientifically sound methodology for carrying out such assessments and consideration of incentives to ensure that these methods are applied: to develop tools enabling the impact assessment of sectoral policies on biodiversity.

## *Indicative tasks for further calls*

–  Assessment of the environmental impacts of fuel and their effects on vehicles emissions.

–  Development of quality indicators for recreational waters through the determination of pathogens.

–  Assessment of organic compounds in different types of waste.

## 1.6. Assessment of environmental technologies for support of policy decisions, in particular concerning effective but low-cost technologies in the context of fulfilling environmental legislation

## Policy context

Environmental technology is already playing a role in decoupling growth from environmental damage, but it is crucial that its full potential is harnessed. Of special interest are clean technologies, for which the barriers to the development and use will be identified. The proposed research will contribute to the implementation of the action plan on environmental technologies following the Commission's report on environmental technologies for Sustainable Development[8]. In addition it will contribute to the implementation and development of the 6th Environment Action Programme, and the revised Directive 2000/53 on End-of-Life Vehicles through research on substitution of Ni/Cd batteries. Research will support the EU strategy for Sustainable Development through cost-benefit analyses of environmental actions, improved assessment methodologies and data.

## Research objectives

The objectives are: to characterise the environmental technologies according to their technical, economic, environmental and social aspects; to make a cost-benefit analysis of environmental actions, to improve assessment methodologies and data.

### *First call tasks*

− **(Task 1) Assessment of effectiveness of technologies and related policy instruments to improve their environmental performance:** to identify and define the barriers to the development, diffusion and use of cleaner integrated technologies by households and businesses in transport, energy, industrial and agricultural sector; to identify the policies and mechanisms to be used to encourage and facilitate more efficient development, adoption and use of these technologies.

− **(Task 2) Research on possible substitutes for the use of nickel-cadmium batteries in electrical vehicles and in the non-automobile industry in the EU:** to investigate available substitution technologies which can ensure the same level of performance as an NiCd batteries; to carry out the environmental assessment of any substitute on the basis of a life cycle approach; to evaluate the economic consequences of introducing possible substitutes for the European battery industry.

− **(Task 3) Estimation of willingness to pay to reduce risks of exposure to heavy metals**, and cost-benefit analysis for reducing heavy metals occurrence, in the different Member States as well as Candidate countries, including damage assessment of heavy metals from sources to environment and health in the long term.

− **(Task 4) Adaptation of economic models for analysing the impacts of the environment technologies**, taking into account the international dimension

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[8]    COM(2002)122 final

and the economic and environmental regulation: to adapt economic models to assess the impact of the intensive deployment of environmental technologies on industrial competitiveness and trade.

–   **(Task 5) Building and integrating scenarios and accounting frameworks of environmental and health externalities for clean technologies:** to compare scenarios to be used for assessing the economic and environmental impacts; to develop and adapt the accounting frameworks for externalities needed to describe the impact of clean technologies.

# 2. Providing health, security and opportunity to the people of Europe

## 2.1. *Health determinants and the provision of high quality and sustainable health care services and pension systems (in particular in the context of ageing and demographic change)*

### Policy context

Health and social policy in the EU is moving from a series of separate, relatively small-scale initiatives towards the formation of a more coherent overall policy vision with a clear evidence base. An important driver for is the need to respond to the new challenges of enlargement and to find effective responses to issues relating to the ageing population, the introduction of new technologies, including IT, and the increasing mobility of patients, health professionals and services.

The health care systems of all Member States are under increasing pressure to cope with demands of their populations. The ageing population, technological innovation and greater patient expectation are likely to continue to exert pressures on social welfare systems, and health systems in particular, over the coming years.

At Barcelona, the European Council invited the Commission and the Council to examine more thoroughly the three long-term objectives of accessibility, quality and financial sustainability, which form the common framework to develop co-operative approaches in the EU[9].

### Research objectives

Research is needed to deepen understanding and enhance the scientific base for policy on the main determinants of health in the EU and of developments in European health and care services. It will contribute to health protection, prevention and promotion, taking into consideration a comparative policy assessment of the determinants for health, such as key lifestyle factors, nutrition and gender and other policies that impact on health, such as social exclusion policy.

Research under this area will complement and take into account the actions to be launched under the new EC Public Health Programme (2003-2008)[10] and the work to be carried out under Priority 1 "Life Sciences, genomics and biotechnology for health". It will have the following specific objectives: to establish demographic scenarios; to improve the understanding of health determinants; to move towards better cost-effective health care systems; to achieve a greater understanding of the role of the patient in health care systems; to move towards a better understanding of the impact of other policies on health; to assess the quality and performance of health care; to assess the performance of pension systems and the consequences of an ageing population.

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9  COM(2001)723: "The future of health care and care for the elderly: guaranteeing accessibility, quality and financial viability"

10  Decision N° 1786/2002/EC of the European parliament and of the Council, 23/9/2002 adopting a programme of Community action in the field of public health (2003-2008).

*First call tasks*

– **(Task 1) Establishment of demographic scenarios:** to develop large and detailed scenarios with detailed descriptors based on scientific rationale with built-in probabilistic analysis in order to assess the impact of population change, in particular the ageing population, on health care demand and pensions.

– **(Task 2) Investigation of the impact of key lifestyle factors and other major health determinants**: to carry out an investigation of major health determinants and their impact on cancers; to increase understanding/knowledge across Member States and Candidate countries of the way in which health determinants impact on cancers. Research would include health determinants such as socio-economic factors and lifestyle factors (e.g. alcohol, tobacco, nutrition and physical activity).

– **(Task 3) Comparing Member State's health costs at individual service level:** to identify possible methodologies for comparing costs of services, and to scope the possibility of the future development of detailed systems of health cost auditing and accounting in order to move towards better cost-effective health care systems.

– **(Task 4) Investigation into different key factors driving health expenditures and in particular their interaction with particular reference to ageing:** In addition to the work undertaken by the Social Protection Committee, to assess the economic and budgetary consequences and long term financial sustainability of ageing populations, in particular through increased spending on pensions and on health and long-term care, through the development of a model to generate long-run projections of health and long-term care expenditure.

– **(Task 5) The role of the patient in health care systems:** to carry out an investigation of the role of the patient in health care systems in order to increase understanding/knowledge of a number of issues related to patient mobility and their information needs; to investigate how long-term stays of EU citizens in other countries are addressed by health systems and reimbursement aspects; to develop scenarios to be employed by policy makers for sharing capacity across health systems, and the potential for cross border flows in an enlarged European Union.

– **(Task 6) Performance assessment of health care institutions:** to assess and compare different quality strategies (accreditation of health care institutions, implementation of clinical guidelines, performance indicators patient satisfaction surveys…) and their potential use when patients move across borders to obtain care; to provide a first basis to assess the need and the development of formal quality procedures at EU level for primary and secondary care institutions.

– **(Task 7) Development of indicators for the adequacy of pension systems:** to develop indicators in order to better address the long-term adequacy and efficiency of pension systems (2025-2050) and support innovative approaches and solutions to it.

### 2.2. *Public health issues, including epidemiology contributing to disease prevention and responses to emerging rare and communicable diseases, allergies, procedures for secure blood and organ donations, non-animal test methods*

## Policy context

Health policy in the EU is entering a new phase of development. It is moving from a series of separate, relatively small-scale initiatives towards the formation of a more coherent overall policy vision with a clear evidence base. An important driver for this is the need to respond to the new challenges of enlargement and to find effective responses to issues relating to new threats to health from for example communicable diseases and bio-terrorism.

One main objective of the new Programme of Community action in the field of public health (2003-2008) is to develop mechanisms and build up the necessary capacity in Member States and Candidate countries with which to respond to major health threats, including a rapid reaction capability. Action is also required to underpin the development of policy where the Community has competence in other key areas of the public health framework, such as securing the safety and quality of blood, organs and substances of human origin[11], and strengthening the surveillance and control of communicable diseases. In the context of the Commission's White Paper on a strategy for a future chemicals' policy, the Commission is committed to the promotion of non-animal test methods, through maximising use of non-animal test methods, encouraging development of new non-animal test methods and minimising test programmes.

## Research objectives

Research is needed to deepen understanding and enhance the scientific base for policy on the main determinants of health in the EU and of developments in European health systems. It will focus on communicable diseases (development of an improved control and prevention system at European level), rare diseases (improve our understanding of a number of already identified diseases and facilitate the identification of others), secure blood and organ donations (development of procedures for the replacement of blood, blood components, organs, tissue and cells by safer alternatives including identifing the best possible framework for donations) and alternative in vitro testing methods (development of globally accepted test guidelines that can be further validated).

Research under this area will complement and take into account the actions to be launched under the new EC Public Health Programme (2003-2008) and the work to be carried out under Priority 1 (Life Sciences genomics and biotechnology for health) and Priority 5 (Food Quality and Safety), as well as work foreseen under 2.7 below (Issues related to civil protection). It will have the following specific objectives: to strengthen the surveillance and control of communicable diseases; to constitute research capacity in the field of rare diseases; to develop procedures for secure blood

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[11]     Article 152 of the Treaty of Amsterdam and Council Recommendation 98/463/EC.

and organ donations; to develop alternative *in vitro testing* methods and strategies for chemical substances.

## *First call tasks*

– **(Task 1) Strengthening of the surveillance and control of communicable diseases through research networks in the field of infectious diseases research:** to build networks of research capacity and scientific support in the field of infectious diseases aimed at developing solutions for research related questions of the Community Network for the epidemiological surveillance and control of communicable diseases (Decision 2119/98/EC).

– **(Task 2) Strengthening of the surveillance and control of communicable diseases through the development of models on risk assessment, intervention strategies and implementation/evaluation:** to develop models on risk assessment, intervention strategies and implementation/evaluation of these strategies for major communicable diseases in view of health economics (including cost-benefit analyses on specific preventive interventions, such as vaccinations); to develop a risk-assessment for introduction of new or emerging infectious disease (such as the risk for introduction of West-Nile virus as a human disease); to develop models to identify health hazards in the food-chain for major microbiological agents(such as Campylobacter, Salmonella and Verotoxin producing E-coli); to develop models to evaluate possible propagation of airborne infections in the community, based on modern social patterns; to measure in case-studies the economical benefits of early identification and limitation of exposure to risk-factors identified as the causal agents in outbreaks.

– **(Task 3) Strenghthening of the surveillance and control of communicable diseases through the assessment of the sensitivity and specificity of surveillance systems, the development of risk assessment tools and intervention strategies, in particular for anti-microbial agents – surveillance of anti-microbial resistance:** to develop a strategy for co-operation to use common methods for joint risk assessments for action across the life sciences in Member States and Candidate countries.

– **(Task 4) Strenghthening of the surveillance and control of communicable diseases through the development of tools for behavioural changes of the general public and professionals in the Community towards prudent use of anti-microbial agents in view of different cultural backgrounds:** to carry out research on existing behavioural tools/schemes in different Member States and Candidate countries; to develop tools to focus specifically on the development of media campaigns targeted at health care professionals and the parents of young children and healthy adults on the reasonable use of anti-microbials.

– **(Task 5) Constitution of research capacity in the field of rare diseases:** to develop a network of research capacity and scientific support in the field of rare diseases research in order to address and propose solutions to research needs that may emerge from public health activities in the area of rare diseases.

–        **(Task 6) Development of procedures for secure blood and organ donations:** to address the replacement of blood, blood components, organ tissue and cells by safer alternatives; to develop new and better tests for the screening of substances of human origin such as blood, plasma, tissue, cells and organs.

–        **(Task 7) Identification from existing donation systems of the best possible framework of procedures for secure blood and organ donations,** taking into account legal, ethical, social, political and medical factors, in order to create the most advantageous conditions across Member States and Candidate countries.

–        **(Task 8) Development of alternative *in vitro* testing methods and strategies for chemical substances:** to carry out research on the development of alternative methods for testing chemicals, both at the European Community level and at the level of Member States, and to enhance and share the relevant information that can be obtained from testing.

## 2.3. *The impact of environmental issues on health (including safety at work and methods for risk assessment and the mitigation of risks of natural disasters to people)*

## Policy context

The development of robust and transparent environmental protection legislation is dependent on a number of factors including the establishment of clear and policy relevant science. Within this context the Sixth Environmental Action Programme 2001-2010 sets the strategic direction of environmental policy over the next 10 years. One of the four priorities identified within the Action Programme is that of "Environment and Health" which identifies the objective to "achieve a quality of the environment where the levels of man-made contaminants do not give rise to significant impacts on or risks to human health".

The new Community strategy on health and safety at work 2002-2006 provides a global approach to well being at work, based on consolidating a culture of risk prevention, on combining a variety of political instruments and on building partnerships. The new framework for Community action outlined in the "Communication on the development of Public Health policy" calls for improving information for the development of public health, reacting rapidly to health threats and tackling health determinants through health promotion.

## Research objectives

The research objectives are diverse and broad in scope. They address health application of EMF exposure, indoor air quality, reduction of noise production, ambient air quality, risk assessment and natural disasters. They are also areas in which research is ongoing in the national and other contexts. One of the principal objectives of research activities under this heading will therefore be to bring together existing and future research results in the most important domains, interpret them and assemble coherent inputs to the relevant community policies.

### *First call tasks*

− **(Task 1) Health implications of EMF exposure:** to improve the understanding of, and to co-ordinate research activities related to, the biological effects of electromagnetic fields in line with the conclusions of the SANCO Scientific Committee on Toxicology-Ecotoxicology and the Environment and the Expert Seminar on Electromagnetic Fields and Waves orgnised by the Commission; to consider potential carcinogenic risks linked with exposure to extremely low frequency fields and on other biological effects of electromagnetic fields.

− **(Task 2) Indoor Air Quality:** to increase the understanding of health impacts of indoor air quality through the co-ordination of European research activities within the context of the 6th Environmental Action Programme, the development of a Community Environment and Health strategy, the development of European public health policy and the new Community strategy on health and safety at work. Areas to focus on include: assessment of policy relevance of research into the health effects of isolated agents and mixtures, implications for safety thresholds and the contribution of indoor air

quality to acute and chronic health impacts (including asthma and respiratory allergy).

−    **(Task 3) Support to policy for the reduction of noise pollution:** to analyse harmful effects of noise and to develop specific dose-effect relationships within the objective to achieve a reduction of the number of people in Europe regularly affected by long-term high levels of noise at and outside the workplace.

## *Indicative tasks for further calls*

−    **Ambient Air Quality:** to develop the scientific basis of Community legislation in support of the 6th Environmental Action Programme which calls for the development of appropriate air quality standards; to provide effective and efficient interface between research and the regulatory framework through support to the Clean Air For Europe (CAFE) initiative.

−    **Risk assessment and prevention of natural disasters:** to further develop methodologies on risk assessment and prevention of natural risks and to include consideration of the mitigation of the risks to people arising from natural disasters (including seismic risks and those which result from human actions) in order to assess the potential impact of environmental issues on health.

## 2.4.    Quality of life issues relating to handicapped/disabled people (including equal access facilities)

## Policy context

Allowing for differences in definitions and measurement procedures, it is reasonable to estimate that people with disabilities form from 7 % to 18 % of the European Union population and are affected by a physical, cognitive, or psychic severe to moderate condition that requires societal accommodation[12]. These figures are much likely to increase in the future. In its recent decisions, the Commission developed a human-rights-based approach to disability, underpinned by Article 13 in the Amsterdam Treaty[13]. Achieving equal opportunities for people with disabilities calls for a multi-pronged strategy involving *inter alia*, combating discrimination, promoting greater social integration and active participation, enhancing the opportunities for education, training, lifelong learning and employment, facilitating independent living and increasing the availability and quality of care and assistive technologies.

Anti-discrimination measures, design for all approaches and active labour market policies are now occupying a central place in the 'social model' of disability, which dominates now the European disability policy agenda. The Community is aiming to strengthen co-operation with and among the Member States in the disability field and promote the collection, exchange and development of comparable information and statistics and good practice.

## Research objectives

Multi-disciplinary research is needed to address the gaps in knowledge, deepen understanding and enhance the scientific base of policy. It will focus on improving measurement issues, changing the organisation of care delivery to services and understanding the social and environmental contexts.

Research in this area will draw on recent results and on-going projects and initiatives. It will have the following specific objectives: to improve measurement on types and prevalence of impairments European wide; to develop innovative strategies and methods for improving independent living conditions and integrated living models; to develop the principles for quality of care and quality assurance criteria in the different countries; to examine the patterns of cost sharing in different Member States and Candidate countries.

### *First call tasks*

−    **(Task 1) Measurement of types and prevalence of impairments:** In the light of the social model of disability, to improve measurement on types and prevalence of impairments European wide, on the nature of human impairment in individuals and populations, the relationship with health

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[12]    "Disability and Social Participation in Europe", European Commission Eurostat - Theme 3 Population and Social Conditions, 2001.

[13]    Directive establishing a general framework for equal treatment in employment and occupation and a Community action programme to combat discrimination (2001-2006) - COM(2000)284 "Towards a barrier free Europe for people with disabilities".

status, impact of environmental factors on the incidence of impairments, population characteristics and demographic projections. The developed system should help predict and understand changes in the prevalence and distribution of disabilities that illustrate the link between underlying social and environmental conditions and the differential distribution of disability among various population groups in our society.

- **(Task 2) Service organisation and evaluation – principles for quality of care and quality assurance:** to develop the principles for quality of care and quality assurance criteria in the different countries, integrating evaluation of the demand for services; to propose models for analysis of cost-effectiveness and availability and efficiency of existing programmes and services and indicators of quality, in particular through the analysis of new models for support at home and integration of services, users participation schemes and ways of incorporating the shift towards person-centred values into service planning and provision.

- **(Task 3) Sharing the cost – patterns of cost sharing and the relationships to social participation and social inclusion:** to examine the patterns of cost sharing in different Member States and Candidate countries, considering the importance of health for social participation and the impact of disability for social inclusion; to develop innovative strategies delivering better effect to avoid the exclusion and poverty trap for people with disability.

## *Indicative task for further calls*

- **Rethinking care:** to develop innovative strategies and methods for improving independent living conditions and integrated living models. To share expertise on the type of culturally appropriate community care and rehabilitation services which would be efficient, effective and affordable in the different Member States, supporting desinstitutionalisation and independent living, and the role of assistive technologies in these services.

## 2.5.   *Comparative research of factors underlying migration and refugee flows, including illegal immigration and trafficking in human beings*

## Policy context

The Treaty of Amsterdam introduced the new Community policy on immigration and asylum as an integral part of the space for freedom, security and justice to be set up by May 2004 according to the objectives defined by the conclusions of the European Council held in Tampere in October 1999. This policy completes the framework encompassing the fight against racism and xenophobia, the integration of third-country nationals residing in the Union, equality of treatment and the fight against discrimination.

## Research objectives

The research is targeted at the following objectives: better knowledge of legal and illegal migration flows towards and within both the European Union and the candidate countries; analysing the impact of European Union legislation and actions on the Member States, migration flows and the countries of origin of migrants; studying and comparing the immigration and asylum policies of each of the Member States, including the integration of nationals from third countries and discrimination matters.

*First call tasks*

−       **(Task 1) Bilateral immigration agreements** signed by the Member States and the candidate countries with third countries before and after the entry into force of the Treaty of Amsterdam.

−       **(Task 2) Profile and strategy of illegal immigrants (particularly as concerns their participation in the undeclared labour market)** on the basis of a sample selected in different Member States and comparing them with the profile and strategy of legal immigrants.

−       **(Task 3) The practices and reasoning of those Member States which condition the initial entry of third-country nationals upon the issuing of a visa prior to delivering a residence permit.** The practices and reasoning of Member States with regard to the refusal or acceptance of applications for visas or residence permits being made on the spot (and not initially in the country of origin via the embassies and consulates of the host state). The category, nature, duration and number of long-stay visas and residence permits issued to third-country nationals by each of the Member States (including visas or permits for job-seekers).

−       **(Task 4) Member States' statutory provisions and practices concerning the delivery of residence permits** to the victims of trafficking in human beings and/or aid to illegal immigrants in return for their cooperation with the competent authorities in the dismantling of such networks.

−       **(Task 5) Better sources for statistics for a better knowledge on migration flows to the EU:** to describe the national system of gathering information on inflows and outflows of foreigners, to provide comparative tables on similarities and differences between Member States, to identify the problems

resulting from these differences with a view to the collection of different forms of data on migration flows and to identify the consequences for collecting, disseminating and analysing such data at a supranational level; to describe and analyse activities and measures undertaken by international organisations (including UN, Council of Europe) and at national level to overcome these problems.

–    **(Task 6) Comparative study of and any developments in the conditions and practices of granting nationality in the Member States,** including any distinctions between nationality and citizenship.

–    **(Task 7) Appeals lodged by third-country nationals other than asylum seekers** against decisions to refuse, amend, withdraw or not renew residence permits and appeals against decisions of expulsion from the territory (trend in the number of appeals, possible overburdening of appeal bodies, measures taken within the bodies concerned in order to cope, length of periods when decisions are pending).

–    **(Task 7a)** Idem for asylum seekers.

## 2.6. *Improved means to anticipate crime trends and causes, and to assess the effectiveness of crime prevention policies; assessment of new challenges related to illicit drug use*

## Policy context

The Commission is to step up progress towards a European area of freedom, security and justice by advancing work on internal security and guaranteeing at the same time respect for freedoms and fundamental rights. The fight against crime, in all its forms, including terrorism, and the need to increase the security of Europe's citizens remains at the forefront of co-operation at European level. The Commission has enshrined this priority in its Annual Policy Strategy for 2003. In addition, the Amsterdam Treaty sets the goal of combating the escalating drug problem in the EU through research and policy directed both at the social and health aspects of drug abuse, and at the supply of drugs through drugs trafficking.

## Research objectives

There is a need for a sound knowledge-base on upcoming crime trends and trends in the use of illicit drugs and for the development of a set of analytical tools to assess risks and threats as well as to measure the impact of existing policy responses. The need for respecting freedoms and fundamental rights should be part of the assessment of the impact of such policy responses. Research will focus on describing and comparing the nature and volume of crime (organised crime and 'volume' crime), evaluating crime prevention strategies (existing practices, common framework, innovative instruments), stimulating crime proofing (legislations and products) and investigating the effects of illicit drugs and the effective treatment of drug abuse.

### *First call tasks*

–    **(Task 1) Measurement issues - volume and nature of organised crime:** to review and evaluate existing data sources on criminal organisations (structure, operations, logistics, socio-cultural motives and the link to licit and illicit markets); to review existing situation in specific economic sectors. Detail the contribution of private security services; to examine the feasibility of a common European approach, propose a common methodology and indicators and run a first pilot on a specific crime area (eg. terrorism, trafficking in persons, offences against children, illicit drug trafficking and arms trafficking, corruption and fraud).

–    **(Task 2) Measurement issues - volume and nature of volume crime:** to review existing data sources and surveys and examine the feasibility of applying common instruments on the nature and extend of volume crime (such as, eg, the International Crime Victims Survey and eventually the International Crime against Business Survey) to all Member States and to Candidate countries.

–    **(Task 3) Evaluation of crime reduction strategies** - Review of existing evaluation practices at national and international level and development of a common evaluation framework for assessing the performance of prevention strategies: to identify a set of good practices in specific areas. The following questions should be considered: What works in general crime prevention?

What crime prevention strategies are used –and with what effects- in communities, families, schools, labour markets, police, and criminal justice?

- **(Task 4) Evaluation of crime reduction strategies - Innovative instruments and practises for crime prevention:** to identify innovative forms of crime prevention instruments - from regulation to voluntary approaches - and the most effective 'mix' of them. What technical tools –eg. tracking devices in consumers goods- are being implemented? What are the specific approaches and roles of different groups of actors (public, private, NGO's and associations) in crime prevention? How do these approaches combine?

- **(Task 5) Crime proofing - Develop a crime risk-assessment mechanism** at EU level and run a pilot (detection of loopholes and proposal for remedial action). An area of particular interest is legislation relevant to all forms of economic and financial crime.

- **(Task 6) Crime proofing - Carry out a prospective analysis of long-term threats** and set out a picture of the drivers for the future (scientific, social, etc.) with regard to their implications for crime; develop recommendations for action on how to prepare for these developments in a way to simultaneously guarantee citizens safety and respect for fundamental rights.

- **(Task 7) New challenges related to illicit drugs** - Develop comparable scientific methods for testing Amphetamine Type Stimulants (ATS) to enable law enforcement agencies to track down production sites and trafficking routes.

- **(Task 8) New challenges related to illicit drugs - Review and evaluate existing data sources on synthetic drug use:** to analyse the long term effects of use of synthetic drugs, and the social factors affecting use; to review the effectiveness of different preventive measures.

## 2.7. Issues related to civil protection (including biosecurity and protection against risks arising from terrorist attacks), and crisis management

## Policy context

Risks related to terrorist attacks include a broad variety of possible threats, which cannot all be fully identified and tackled in terms of targeted research. In this context, integrating European knowledge and expertise is required in order to be able to respond quickly and efficiently in case of terrorist attacks or major outbreaks of rare communicable diseases.

The Commission has prepared a programme of action[14] aimed at improving cooperation among the Member States in preparedness, detection and intervention to reduce the consequences of Nuclear, Radiological, Biological and Chemical (NRBC) threats to society.

It has launched new initiatives to confront the threat of the use of biological and chemical agents in attacks and identified the need for enhanced capacity for surveillance, prevention and response, improved detection techniques, support to stockpiling of vaccines and drugs, vulnerability assessment strategies and improved risk assessment methods.

A recent Communication summarises on-going activities, in particular in developing and implementing interfaces between the civil protection coordination mechanism, the network for epidemiological surveillance, both at national and European levels, and control of communicable diseases, and activities in key complementary sectors such as research and the pharmaceutical field.

## Research objectives

Research is needed on improving health protection (surveillance, detection, prevention and treatment) and on developing preventive, risk communication and crisis management strategies.

It will complement and take into account the work to be carried out under Priority 1 (Life Sciences genomics and biotechnology for health) and Priority 5 (Food Quality and Safety). It will have the following specific objectives: enhance surveillance capacity in place and develop more performant surveillance models and early warning surveillance systems; improve existing laboratory detection methods; improve infectious disease modelling tools and risk assessment models; strengthen networking activities towards the development of new vaccines and therapeutics; assess technological, social, economic and psychological vulnerabilities of modern societies.

### First call tasks

−   **(Task 1) Enhancement of surveillance capacity in place and development of more performant surveillance models and early warning surveillance systems: to develop and evaluate alternative surveillance tools with increased capabilities to detect introduction of new or altered disease**

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[14]   COM(2001)707, "Civil protection - State of preventive alert against possible emergencies".

**threats;** to evaluate surveillance tools for their potential to early detect clustering of cases and events suspicious of deliberate release; to develop procedures for early recognition by clinicians, microbiologists, toxicologists and organisations of the occurrence and importance of unusual cases and outbreaks of illness including those that can be associated with deliberate release; to develop tools to increase timeliness of reporting of these occurrences to the proper authorities locally and nationally; to develop and test training material and exercise algorithms for clinicians, microbiologists and toxicologists such that they will be likely to detect and report likely deliberate release and major threats in real time; to develop surveillance from adequate laboratory and hospital networks at national and European levels; to develop criteria to improve a deliberate release detection based on already developed scenarios.

−   **(Task 2) Improvement of existing laboratory detection methods** through exchange of best practice and protocols and develop alternate rapid laboratory detection methods, using clinical, microbiological and environmental samples.

−   **(Task 3) Improvement of infectious disease modelling tools and risk assessment models:** to identify the assumptions and variables used when creating the models based on already developed scenarios; to achieve EU-wide accepted modelling variables/parameters for infectious disease (ID) agents based on existing data; to develop models for the dispersion and propagation of communicable and non-communicable agents.

−   **(Task 4) Strengthening of networking activities towards the development of new vaccines and therapeutics in particular against health threats caused by bioterrorism:** to set public health driven priorities for development of biological products against health threats caused by bioterrorism and major outbreaks of rare communicable diseases based on already developed scenarios; to exchange information on vaccine development and production capabilities within the EU for countering the effects of bioterrorism; to develop and strengthen activities towards the development of vaccines, antitoxins, antisera and other relevant therapeutic strategies.

−   **(Task 5) Assessment of technological, social, economic and psychological vulnerabilities of modern societies** with the view to developing preventive, risk communication and crisis management strategies: to analyse the consequences of deliberate release of a chem, biol or radionuclear agent on infrastructures, in terms of effects on humans and economies of the societies concerned; to define and classify the types of hazards associated with the infrastructures; to assess the risk levels taking into account the variety and intensity of hazards, the probability of deliberate release of the agent and the effects of preventive and control measures for different types of infrastructures; to formulate recommendations for the improvement of security of the infrastructures and for reducing the impact of a deliberate harmful release of a chem, biol or radionuclear agent in different infrastructures.

# 3. Underpinning the economic potential and cohesion of a larger and more integrated European Union

## 3.1. *Underpinning European integration, sustainable development, competitiveness and trade policies (including improved means to assess economic development and cohesion)*

## Policy context

The Lisbon Summit set for the EU the objective to become the most competitive and dynamic knowledge-based economy, capable of sustained economic growth, providing more and better jobs and greater social cohesion, and the Gotheborg summit adopted an ambitious strategy for sustainable development. In addition, the EU is working on improving the functioning of the internal market while being a player in the global economy; as such is committed, for example, to the implementation of the Doha Development Agenda. These commitments require unprecedented levels of policy integration and of means to assess trade-offs and complementarity between diverse policy objectives. This represents a formidable challenge for both research and policy, as it is important to understand and address very diverse and specific issues and sectors, and at the same time identify instruments for tackling the relations between them in order to meet ambitious objectives.

## Research objectives

It is necessary to develop analytical frameworks, methods (eg. for impact analysis) and indicators to understand and, when possible, quantify a number of aspects - and the key links between them - in relation to the pursuit of sustainable growth and development, competitiveness and social cohesion. The contribution of specific policies such as trade, finance, fiscal, enterprise, regional, social affairs policies needs to be considered in the overall framework of the complementarity and trade-offs between the above policy objectives, and taking into account the global context. The main aspects to be focused under this research area include productivity trends, competitiveness (eg. competitiveness effects of European goods and services, competitiveness effects of green tax reform and regulatory changes, competition policy and sustainable development objectives), impacts of financial integration and taxation on employment, pensions, social cohesion, environment protection; significance of the service sector; role of standards; impacts of foreign direct investment (FDI) and intellectual property rights (IPR) on sustainable development; social cohesion and regional sustainable development. While focusing on the specific aspects mentioned above, the overall objective is to provide analytical instruments, models and data to identify the prospects and barriers to the achievement of the Lisbon and Gotheborg objectives and assess the relevant policy options and tools.

### *First call tasks*

–   **(Task 1) Sectoral/industry level data for employment, capital and total factor productivity:** to produce a complete picture of productivity trends at a sectoral / industry level, including the service sector, for all Member States and later on Candidate countries; to improve the understanding of the evolution of the determinants of productivity and of the relative performance

of the different EU sectors / industries in terms of their overall contribution to aggregate productivity growth in the EU.

–   **(Task 2) Measures of the degree of competition on European goods and services markets:** to identify different measures of competition on goods and services markets; to assess the availability of data permitting the actual calculation of the measures selected; to illustrate the usefulness of the different measures suggested by way of case studies.

–   **(Task 3) Impacts of financial integration on the functioning of the financial system:** to improve the understanding of the relationship between financial integration, financial development and economic efficiency in view of the Community's effort to accelerate the completion of the Internal Market (i.e. implementation of the FSAP by the deadline of 2005) and to promote efficient euro-denominated financial markets.

–   **(Task 4) Impacts of tax/benefits levels for the pursuit of sustainable development, employment, pensions, social cohesion:** to assess the tax levels required to achieve the policy objectives of Sustainable Development Strategy, in particular in the areas related to energy production, energy consumption and transport; to assess and compare different tax/benefit systems and levels with consideration to their impacts on employment, pensions, alleviation of poverty and social exclusion.

–   **(Task 5) Competitiveness effects of green tax reform and of specific regulatory changes:** to analyse the competitiveness impacts of green tax reforms at a sectoral level using bottom-up modelling framework and case studies concerning the existing tax reforms which have taken place in the EU and Candidate countries.

–   **(Task 6) Significance of the service sector and related enterpreneurship:** to advance knowledge of the nature and effects of the new modes of functioning of the economy, especially the development of services and rise in intangible assets (eg. harmonising micro, meso, and macro measurements and designing policies for the intangible economy); to analyse barriers to the implementation of new approaches to the measurement and management of value creation and the dissemination of usable practices of measurement and management of knowledge; to steer the existing European research and practioners efforts, towards measuring, reporting and managing intangibles.

–   **(Task 7) Standardisation and optimisation of the interface of norms and research:** to develop a taxonomy of standards, methods for converting research results into standards, for the comparison between research outcome and the resulting standard(s); to develop techniques and tools allowing conformity testing and interoperability events to be done more accurately, faster and more cheaply.

–   **(Task 8) Analysis of benefits and costs –in broad sense- of competition policy for international trade and sustainable development:** to analyse the potential impact of multilateral or bilateral/regional agreements on competition rules in order to enhance the contribution of competition policy to international trade and sustainable development. In particular it should focus on the potential benefits and costs (economic, social, environmental) to developing countries of the adoption of standard approaches to competition,

together with an analysis of potential scenarios. This would support the EU in developing appropriate policy proposals in this element of the negotiations, in co-operation with developing country partners and other stakeholders.

– **(Task 9) Analysis of benefits and costs –in broad sense- of FDI rules for sustainable development:** to analyse the potential costs and benefits (e.g. economic, social, environmental) of the establishment of standard rules on Foreign Direct Investment through a Multilateral Investment Agreement as well as through bilateral/regional agreements. In particular it should focus on a quantitative assessment and an analysis of the effects (static and dynamic) principle by principle (limitation of performance requirements, rules on incentives, access conditions, etc.) and by developing region, including the potential of regional investment agreements.

– **(Task 10) Impact of IPR rules on sustainable development:** to assess the impact of IPR rules on economic growth (including investment), environmental protection (including biodiversity) and social goals (including rural development) through quantitative and qualitative analysis, taking a particular account of the impact of IPR rules on technology transfer.

– **(Task 11) Impact of cohesion policies on sustainable regional development:** to develop concepts and methodologies enabling a comprehensive identification and integration of the various dimensions of sustainable regional development and allowing a balancing of such dimensions for optimising the positive impacts of regional policy.

## 3.2. The development of tools, indicators and operational parameters for assessing sustainable transport and energy systems performance (economic, environmental and social)

## Policy context

Energy and transport play a key role in people's lives and are a decisive factor in economic competitiveness and employment. The promotion of sustainable development including its economic growth dimension and continued freedom of movement has become a central objective of European Union policy. Reaching this objective requires comprehensive policy measures, voluntary agreements, financial schemes and support to research and development. These are at the heart of the Commission proposals presented in the *Green Paper* "Towards a European strategy for the security of energy supply", and in the *White Paper* "European transport policy for 2010: time to decide"[15].

In setting out different options, these policy documents clearly identify the main factors contributing to current unsustainable development patterns. The continuous rising of energy and transport demand and their growing dependence on imported fuels, notably oil, is undermining the sustainable development of the European economy. Growing congestion, a succession of accidents and energy supply crises has in turn highlighted the risk of disruption in flows both in energy supply chains and in mobility systems.

## Research objectives

Research is needed to deliver realistic solutions that support policy monitoring and forecasting and facilitate/enhance the implementation of the transport and energy policy measures and instruments. Research will focus on monitoring the implementation of the European transport and energy policies through an efficient, rapid and secure access to reliable and harmonised data and forecasting tools, and assessing the impacts of individual policies and policy packages in terms of sustainability indicators and harmonised approaches.

It will in particular have the following specific objectives: improve European transport models and forecasts (refining the analysis of demand, linking with energy models); define/measure the quality of service of the transport system (reliability, congestion, bottlenecks etc.); improve energy models and data sources to evaluate the effects of regulatory action, fiscal measures or other policy instruments on energy security, competitiveness and environment protection; improve appraisal methods and tools; determine sustainability indicators and targets (modal shares, decoupling, shares of renewables etc); analyse, develop and disseminate innovative policy packages and best practices designed to reach the targets defined.

Research under this area will complement and take into account the research to be carried out under the thematic priorities, in particular under Priority 6 (Sustainable development, global change and ecosystems) and Priority 4 (Aeronautics and space).

### *First call tasks*

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[15]    The Green Paper was adopted in November 2000, COM(2000)769, and the White Paper in September 2001, COM(2001)370.

–     **(Task 1) Quality of transport services in the framework of the common transport policy:** to consolidate and validate common definitions and indicators for quality of transport services regarding each transport mode and intermodal transport, and determine an accounting framework and method to measure them; to perform these measurements on parts of the European transport networks, and determine users expectations about transport services quality; to feed the results into existing transport models, and assess selected policy measures in terms of transport service quality impacts.

–     **(Task 2) Transport demand forecasting and scenario testing:** to further improve existing modelling and forecasting tools regarding the European demand in passenger and freight transport across all modes and intermodal transport (so that their results are refined according to the trip purpose, goods type, distance, domestic or international character); to improve tools to produce refined European baseline scenarios for 2010, 2020 and the longer term, and assess alternative policy options.

–     **(Task 3) Harmonised European approaches for transport costing and project assessment:** to provide a harmonised project assessment method, based on cost benefit analysis, for Europe using common impact definitions and calculation methods. This is in particular relevant for assessing the socio-economic feasibility of Trans-European transport networks and implementation of transport pricing. The impact indicators to be covered include at least the value of time and congestion, the value of accident risk reduction, costs related to health and possibly other nuisances from noise and other transport emissions.

–     **(Task 4) Scientific forum on forecast validation and policy assessment:** to involve stakeholders and users in validating the results of the research activities conducted under FP6 in support of Common Transport Policy (including common definitions, indicators, frameworks and methods proposed for pan-European use, refined European transport planning models, baseline forecasts, socio-economic assessment of transport policy options/packages), taking into account other related research activities developed, in particular at national level; to assist in the dissemination and transfer of results to relevant stakeholders and users.

–     **(Task 5) Operational energy, economy, and environment (E3) models:** to further develop E3 models (refinement in the database, representation of economic agents, infrastructure changes, geopolitical risks, role of technological innovation), to define specific scenarios to evaluate the impacts of alternative EU policy and measures related to energy (e.g. to achieve a hydrogen economy) and to build a scientific consensus after comparison of model assumptions and results.

–     **(Task 6) Long-term energy technology planning:** to provide a coherent and systematic understanding of the future trends for energy, environmental and technological aspects focusing on Europe in a world context; to compare quantitative and qualitative approaches; to validate the conclusions by a stakeholders forum.

–     **(Task 7) Making electricity external costs known to policy-makers:** to consolidate and validate the external costs accounting framework; to identify

the optimal ways to implement external costs into European policies; to validate the conclusions by industry, policy-makers and NGO.

– **(Task 8) Scientific energy technology regulation forum:** to identify best-practices and regulations (benchmarking) for sustainable energy in the EU Member States and in other part of the world; to explore the feasibility of implementation of these regulations at the EU-level including the energy RTD policies in the 15 Member States; to involve high-level scientists and decision-makers.

## *Indicative tasks for further calls*

– **Policy packages and best practices:** to develop tools and approaches allowing a comprehensive socio-economic assessment of innovative transport policy packages and identification of best practices.

– **Sustainability indicators and policy targets for transport:** to further develop and refine sustainability indicators for the implementation and monitoring of the European transport policy.

– **Decision aid for policy makers:** to further develop transport and energy project / policy appraisal methods and decision support tools.

– **Linking transport and energy forecasting tools** to improve the *compatibility and coherence* of energy and transport forecasts, scenarios and impact assessment work.

## Policy context

While air transport has long be subject to the most rigorous security measures of any transport mode, recent events have demonstrated that these measures are inadequate to prevent highly trained and motivated terrorists from taking control of aircraft and using them as a weapon of mass destruction.

The report of the 'Ad-hoc Group on Civil Aviation Security' emphasises the strategic need for having a secure air transport system and the role that research must play to that end. In addition the lack of security perceived by the user could jeopardise the normal use of the air transport system with unpredictable consequences for the sector and for the economy in general.

Maritime security is also a major issue of concern for the Community and initiatives have been taken at national, European as well as on international level through the relevant international organisations (World Customs Organisation-WCO, International Maritime Organisation-IMO, International Labour Organisation-ILO and G8).

## Research objectives

In general terms, the objective is to develop suitable approaches and mode-related measures that could help to avoid further terrorist acts.

This research will take a holistic approach to security covering the vehicle, its operation and the necessary measures for both passengers and goods to ensure the highest levels of security, without unduly compromising the efficiency of the transport system.

Specifically, it will address as a first priority the *prevention of the security risk* occurring, and secondly *mitigation actions* in the event of a security event actually happening through the assessment of current and potential future security risks and development of strategies to minimise the effects.

More specifically for maritime security, activities will be focussed on the vulnerability assessment of ships, ports and port facilities, as well as on container security measures and systems, addressing the whole logistics chain.

### *First call tasks*

No task will be launched under the first call.

## 3.4. Forecasting and developing innovative policies for sustainability in the medium and long term

### Policy context

The proposed research will contribute to the 6th Environment Action Programme and the urban thematic strategy, as well as the EU Strategy for Sustainable Development as it was confirmed after the Johannesburg Summit, including regional aspects. It will also contribute to specific EU policies such as waste management (Waste Framework Directive, landfill, incineration, waste Shipment).

### Research objectives

Reaserch will have the following specific objectives: to define the means for assessing sustainable urban development and allowing towns and cities to benchmark with other cities at EU level, without imposing a rigid system of sustainable urban development indicators; to provide the necessary research for exploring economic and technical implications of re-organising the collection and management of waste from a product-based to a material-based approach (glass, paper, plastic, metal); to assess environmental economic and social impacts of community policies in order to forecast the medium and long term evolution in an EU and world context; to develop the trade policy in support to the global sustainable development.

#### *First call tasks*

– **(Task 1) Indicators in support of the EU thematic strategy on sustainable development of the urban environment:** to identify and define which detailed trends should be measured to properly determine progress towards sustainable development of the urban environment at local level; to carry out comparative research on existing sets of indicators.

– **(Task 2) EU waste management policy – From a product-based to a material-based approach:** to assess and benchmark best practices in integrated waste management; to investigate on the socio-economic and technical implication from a product approach to a material approach according to likely scenarios that have been previously identified and assessed; to carry a cost/benefit analysis of a reorganisation of the waste management system in the EU.

– **(Task 3) Impact assessment of community policies in view of medium and long-term planning towards sustainability**: to provide decision-support tools and best practices for Sustainability Impact Assessment; to test them in the context of specific community policies for which an Impact Assessment is required.

– **(Task 4) Assessment of possible innovative approaches compatible with WTO rules to support trade of sustainably produced products:** to improve our understanding of the impact on trade of rule-making on sustainable development, to develop methodological tools for policy assessment in line with the commitments made in the WTO to better analyse the links between trade policy, environment and development; to review and assess possible innovative and WTO-compatible approaches to support trade in sustainably produced products.

*Indicative tasks for further calls*

–   **Development of regional indicators and associated tools** characterising the regional sustainable development in Europe and Candidate countries, including regional benckmarking.

## 3.5. Information Society issues (such as management and protection of digital assets, and inclusive access to the information society)

## Policy context

The eEurope 2005 Action Plan endorsed by the Sevilla European Council is part of the Lisbon 2010 strategy. The objective is to provide a favourable environment for private investment and for the creation of more and better jobs, to boost productivity, to modernise public services, and to give everyone the opportunity to participate in the global information society. eEurope 2005 covers a range of policy issues and actions as a response to the challenges and opportunities (governance, health, learning, employment, environment) triggered by the continuing pace of progress in digital technology and will aim to stimulate secure services, applications and content, based on a widely available broadband infrastructure.

## Research objectives

Research is needed to contribute directly to the eEurope 2005 Action Plan when it addresses major societal and economic challenges, such as inclusion of all European citizens into the knowledge society, the development of broadband access and e-business, and the analysis of the subsequent expected changes in society. It will focus on e-inclusion and accessibility, broadband and society, and e-business (with focus on SMEs and consumer protection).

### First call tasks

− **(Task 1) eInclusion and accessibility:** to contribute to the eEurope Action Plan's effective support for e-inclusion and e-accessibility by investigating existing social, economic, cultural and technological barriers that inhibit the full participation of all people, including those with special needs. This research should be geared towards the identification of concrete and efficient solutions based on explicit hypotheses about the variety of froms of 'connectivity' and participation that may characterise the different sectors of business, education, public administration, civil society and science itself.

− **(Task 2) eBusiness, SMEs and consumer protection:** to facilitate the transition of SMEs to the knowledge economy so that they draw the maximum benefit from e-business and e-commerce. Work will be carried out in parallel on e-business and consumer protection and confidence.

### Indicative tasks for further calls

− **Broadband and Society:** to assess the impact of the "e-society" on people's behaviours. New technologies change people's behaviour at home, at work, in schools, their mobility, etc., and this in turn will affect institutional rules. How will rules be affected, how will they need to be re-designed, how will our "civil" society be affected are the new, fundamental questions to be answered. New notions of proximity, vulnerability etc. should be considered.

## 3.6. *The protection of cultural heritage and associated conservation strategies*

## Policy context

At a time of enlargement of the European Union, the jointly undertaken measures and projects for the protection of our common European cultural heritage will be a strong tie for an enlarged European Union.

There is a need for all EU policies and directives to assess their impact on cultural heritage by making horizontal links (for instance between agriculture and buried archaeology or between air pollution and deterioration of architectural surfaces); furthermore there is an increasing demand for greater access to cultural heritage by European citizens and the physical impact of cultural tourism on preservation must be assessed. But equally important is the need to ensure that all conservation practices meet modern legislation for example, relating to Health and Safety.

## Research objectives

Multidisciplinary research is needed to provide - under the first call - the necessary scientific and technological research for the protection of the immovable cultural patrimony and its constituents and later on for the protection of the movable cultural patrimony. It will focus on providing multi-parametrical analysis of relevant data regarding history, cultural values, architecture, structures and materials as well as environmental factors deteriorating cultural heritage; understanding materials; monitoring changes; modelling and predicting behaviour; managing cultural heritage (including accessibility) and preventing damage.

Research under this area will contribute in particular to the CAFE initiative (Clean Air for Europe) of the Commission, a daughter directive of Air Quality for Europe Directive that explicitly mentions the effects of air pollution on cultural heritage, and to the Community interventions through the «Culture 2000 » framework programme and the Structural Funds.

It will have the following specific objectives: assess air pollution effects on cultural heritage materials and make a sustainability assessment of treatments including development and application of nanotechnology and nanobiotechnology for minimal intervention in conservation and protection, evaluate the effects of global change and tourism on cultural heritage.

### *First call tasks*

–  **(Task 1) Assessment of air pollution effects on cultural heritage:** to identify of thresholds and critical loads for air pollutant exposure; synergetic effects occurring between pollutants, particles and aerosols with historic surfaces; to establish a ranking of air pollutants (balance of risks), particles and aerosols causing harmful effects on cultural heritage materials.

–  **(Task 2) Sustainable Impact Assessment of protection and conservation treatments and their reversibility:** to evaluate and remedy degradation processes; structural reinforcements and stability interventions in historic sites and buildings; biodeterioration, frost and salt damage, cleaning methods, consolidants compatibility and long term effects, vibrations and traffic noise; to identify responses of cultural heritage materials to indoor and

outdoor environmental changes; to develop mitigation and preventive conservation strategies.

−    **(Task 3) Effects of global change on cultural heritage:** to identify positive and negative effects of global change on cultural heritage, to develop mitigation and adaptation strategies both at global and local scale; to identify and to assess the sustainability limits beyond which irreparable damage is done to cultural heritage; to understand and to mitigate vibration and shock effects from earthquakes, thermal and wetting/drying cycles following flood effects; to develop models for these processes.

−    **(Task 4) Identification of durable ancient or traditional materials and craft technologies for application in modern conservation treatments of cultural heritage:** to evaluate the impact of modern materials and techniques on historic structures and cultural heritage materials; to undertake a comparative assessment of traditional and modern protection and conservation strategies.

−    **(Task 5) Cultural heritage and tourism:** to undertake a sustainable impact assessment of patrimony located in modern cities and/or in landscapes; Ways to better integrate cultural heritage into the urban or local context, infrastructure and services; to evaluate the positive and negative impact of cultural tourism on economic growth and quality of life.

## *Indicative tasks for further calls*

−    **Protection of the movable cultural heritage** considering air pollution effects, conservation treatments, global change effects and impacts of tourism.

## 3.7. *Improved quality, accessibility and dissemination of European statistics*

## Policy context

The Lisbon European Council set the ten-year goal of making the EU the most competitive and dynamic knowledge-based economy in the world, capable of sustainable growth, more and better jobs and greater social cohesion. Subsequent Council meetings at Stockholm and Barcelona have served to review and add further impetus to these objectives. As part of this process, a set of structural indicators is prepared and published each year in order to monitor progress towards the EU's main policy objectives. In this context, one of the key challenges is the need to improve the quality and availability of statistics and indicators for monitoring progress towards these goals, which was recognized at the Stockholm European Council as a crucial area requiring further efforts.

## Research objectives

Research will be concentrated mainly on the improvement of the quality and availability of statistics and indicators of the knowledge-based economy, including the enhancement of concepts and frameworks for measurement. It should aim to improve the data available for evaluating progress towards the knowledge-based economy and for bringing forward specific policy proposals for stimulating the growth and competitiveness of the EU.

Research should help to reinforce the development of statistics and indicators for analysing the different dimensions of the knowledge-based economy, and for measuring its systemic strengths and weaknesses. It should include work to produce new and improved measures, as well as approaches aimed at using existing statistics in innovative ways. It should also contribute to strengthening methods for producing composite indicators which can capture and summarize the key components of Europe's progress towards the knowledge economy.

### *First call tasks*

–   **(Task 1) Development of and improvement of indicators for the knowledge economy:** to define the key-components of the knowledge economy and to improve the use and quality of existing data in this field; to improve concepts and frameworks for measurement and to stimulate the production of pertinent and comparable indicators in this area; to encourage innovative uses of existing data; to enhance the articulation between indicators of the different levels and dimensions of the knowledge-based economy.

–   **(Task 2) Development of composite indicators of the knowledge-based economy:** to develop approaches for calculating and analysing composite indicators, including the selection of pertinent component indicators, aggregation and weighting techniques, decomposition methods, and analytical and presentational approaches.