



The Association of Geological Surveys of the European Union
(EuroGeoSurveys)
in their position as
custodians to their national natural resources
and
guardians of their terrestrial environment
present their contribution to
the European Commission's proposal for the fifth framework programme

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Note: The changes and new texts proposed are all given using the same page numbers and paragraphs that appear in the English text of the Commission FP V proposal COM (97) 142 final of 30.04.97.

Additions or substitutions are given in underlined italics.

Text to be deleted is shown with ~~strikethrough~~.

ANNEX II

FIRST THEMATIC PROGRAMME

Page 28 1. UNLOCKING THE RESOURCES OF THE LIVING WORLD AND THE ECOSYSTEM

a) Key actions

**On page 29: at iii) The “cell factory”
the third indent** should be amended as follows:

- new biological processes for the agri-food, environmental and mineral industries

Reason: Cellular processes are of much wider application than the agri-food industry. Certain bacteria can be used to extract metals from ores at an industrial scale without wasting energy or polluting the environment and others can be used to detoxicate soils or waters that have been contaminated by chemical or hydrocarbon spills.

On page 29: at iv) Management and quality of water

the four original indents should be increased to five by insertion of a new first indent, as follows

- Construction of a European reference baseline of groundwater resource quantity, quality and chemistry;

Reason: Although water resources are a critically important part of Europe’s natural capital endowment no pan-European reference baseline has yet been assembled from the abundant detailed technical information available. Before any realistic monitoring of changes in the quality and quantity of pan-European groundwater and surface water resources can be made (as suggested in the original four indents) this baseline information needs to be critically evaluated, assembled, levelled and modelled across national boundaries and different climatic zones in order to take account of the great natural diversity of water-bearing rock formations (aquifers). In most EU countries groundwater is the main source of water for drinking, and for agricultural and industrial production: everywhere it is of critical long term value in preserving the life of the flora, fauna and human species.

We consider this to be a highly important amendment.

On page 29: at iv) Management and quality of water

the four original indents should be reordered so that the first becomes the last as follows:

- technologies for monitoring the quality and the level of groundwater and surface waters;
- surveillance, early warning and communication systems;
- technologies for the regulation of stocks and technologies for arid and semi-arid regions.
- treatment and purification technologies

On page 29: at v) Environment and health
the opening paragraph should be amended as follows:

The aim of this key action is to help reduce the adverse impact on health of the natural environment (both onshore and offshore) or of changes in the environment its processes. It covers in particular issues such as prevention and the effects on health of air pollution and soil contamination, heavy metals and toxic substances, noise, climatic changes and electromagnetic radiation, as well as the effects of pollution at the workplace. It includes as a priority priorities:

Reason: Substances occurring as natural constituents of the soils, rocks, groundwaters, surface waters and marine waters which make up the environment can have deleterious effects on human, animal or plant health before any human intervention, for example: abnormally high (or low) concentrations of metallic and non-metallic minerals: natural acidification of ground and water due to decomposition of sulphur-bearing ores; emissions of naturally produced carbon dioxide, sulphur dioxide, mercury vapour and radon. In the Nordic countries (and elsewhere) the main radiation dosage to humans comes from natural geological sources and is predominantly due to radon. In Norway, over 50% of bedrock wells fail drinking water standards due to excessive natural radioactivity from bedrocks.

We consider this to be a highly important amendment.

On page 29: following v)
the first indent should be amended and a fourth indent added as follows:

- epidemiological studies, including definition of the influence of natural environmental factors on the geographic distribution of health problems in humans, fauna and flora;
- the development of new methods...
- the development of processes...
- investigation of the influence of bedrock, soil, groundwater and surface water characteristics on the use of agricultural land.

Reason: It should not be assumed that the effect of human activity on the environment is the only cause of adverse changes in health. Natural baseline levels of chemical elements in rocks, soils and water need to be mapped in order to identify abnormal levels as an aid to protecting the

population, livestock and crops. Some of the information required to define baseline levels of natural chemistry and radioactivity is already available in each EU country but needs to be assembled and critically levelled across national boundaries through concerted, multidisciplinary action between member countries.

We consider this to be a highly important amendment.

On page 30: at (b) Activities for the research and development of generic technologies the third indent needs to be amended as follows.

- effective and timely reaction to the fight against major natural and technological hazards through the development of monitoring, forecasting, prevention, risk and impact assessment and mitigation and crisis management techniques;

Reason: Routine monitoring and risk assessment (e.g. of floods, earthquakes, landslips, volcanic eruptions, air pollution, chemical/power plant operations, etc) are an important part of forecasting natural or technological disasters and essential in preparing and implementing adequate crisis management plans. The context used for the word "impact" in the original text implies action only after the event. Few Framework Programme activities to date in these fields have developed forecasting systems or crisis management schemes or have produced the clear recommendations needed to guide action by decision makers.

We consider this to be a highly important amendment.

On page 30: at (b) the fourth indent should be made a separate Key Issue as follows:

Objective monitoring of global climatic and environmental change

- understanding of the processes and interactions involved in "global change" on land, at sea and in the atmosphere, as well as their impact on ecosystems, using methods including the reconstruction of past climatic cycles.

Reason: Current public knowledge of climatic history is not always grounded on balanced, objective scientific information or contexts. The inability to understand, predict or adjust to the natural processes and cycles of the environment exacts a heavy human and material cost from modern society. The modelling of evidence locked into young rock strata (e.g. isotope ratios, remains of naturally buried ecosystems), ice and snow can be used to reconstruct the trends of geologically recent climatic cycles (i.e. over the last 250 000 years) which led into present day climatic variation. the compilation of coordinated research on such topics could therefore place present and predicted trends in a more balanced historic context.

On page 30: at (b) the fifth indent should be amended as follows:

- the development of generic Earth observation technologies, notably satellite technologies, for environmental monitoring and resources (minerals, energy, water and soils) and ecosystem management;

Reason: The text here should specify that natural resources include minerals, energy materials, water and soil.

On page 30: at c) Support for research infrastructures
the opening paragraph should be amended as follows:

The priority is to make optimum use, at Community level, of databases and collections of biological and non-biological material, centres for clinical trials, research facilities and computer and information centres for climate studies.

Reason: The European Communities are rich in non-biological public domain databases and collections of groundwater, surface water and marine information derived from many decades of research and climate studies, much of which still remains to be interpreted and should be used as suggested in (b) above as a basis for objective and cost-effective predictive modelling.

SECOND THEMATIC PROGRAMME

Page 31: 2. CREATING A USER-FRIENDLY INFORMATION SOCIETY

a) Key Actions

On page 31: at iii) Multimedia content

the fourth indent (at the top of page 32) should be amended as follows:

- advanced technologies for accessing, filtering and analysing information to help manage the information explosion and facilitate the use of multimedia contents, notably as regards geographical information systems for use in assisting modelling and planning by decision makers.

Reason: Advanced technologies should be developed to enable the management and exchange of large multivariable geoscience datasets such as geographical information systems (GIS) for use in assisting day by day and long term planning and modelling by decision makers in the mineral, hydrocarbon and water industries as well as by city and land use administrations.

On page 32: at b) Activities for the research and development of generic technologies a fourth indent should be added to the three already listed, as follows:

- *promoting the transboundary context and applications of scientific information through telematic networks.*

Reason: The key actions proposed in the Second Thematic Programme should aim to provide the mineral, hydrocarbon and water industries and city and land use administrations with cost-effective day by day or long term planning and modelling tools, enabling the prompt communication of options for action to decision makers during emergency situations.

THIRD THEMATIC PROGRAMME

Page 33: 3. PROMOTING COMPETITIVE AND SUSTAINABLE GROWTH

a) Key Actions

On page 33: at i) Products, processes, organisation the third indent should be amended as follows:

- technologies to reduce resource utilisation and promote reuse and recycling of waste and the development of clean *integrated* processes and products based on the concept of “life cycle analysis”;

Reason: Alternative economically or environmentally beneficial substitute uses of materials should be integrated into the design and operation of all industrial processes: for example, the substitution of refractory clay mouldings for more expensive metal castings; the design of artefacts which do not consist of intimate mixtures of materials or elements and can therefore be readily separated and re-used.

On page 33: at) Products, processes, organisation

A fifth indent needs to be added to the four already listed, as follows:

- *development of means and methods to safeguard the continued supply of raw materials for European industry; such as ores (especially those of high-tech commodities) and industrial minerals*

Reason: It is highly relevant to safeguard the continued supply of quality raw materials to European manufacturing industry so that it can remain competitive.

On page 34: at iv) Marine technologies
the third indent should be amended as follows:

- for the rational and sustainable exploitation of the sea as a source of energy and priority non-fuel mineral resources (in particular off-shore and subsea technologies and the identification of polluted sea floor in order to control any adverse effects on fisheries and the quality of coastal waters caused by mineral extraction);

Reason: It is unlikely for some time that industry will be able to exploit non-fuel mineral resources other than sand and gravel cost-effectively from the floor of the open sea. However the emphasis of the original wording on industry and technology must be balanced to recognise the need to preserve the balance of existing marine environmental systems (e.g. fish ecosystems, the erosion regimes of coasts and navigation channels).

On page 34: at v) Advanced energy systems and services
the second indent should be amended as follows:

- technologies for the storage and distribution of energy as well as storage of CO₂.

Reason: It is now proven that large volumes of the CO₂ captured during combustion of hydrocarbons can safely be stored underground in suitable geological structures and can also assist the efficient extraction of oil and gas from reservoirs. Europe should develop this competitive and exportable new technology to relieve the burden on its own atmosphere whether or not China, Russia and other large-scale consumers decide to do so - particularly as global hydrocarbon consumption increase rates are predicted to rise by 35-45% over the next 15 years.

On page 34: at v)
the third indent should be amended as follows:

- technologies for the clean production and use of fossil fuels and for the rational use of energy, including maximising the recovery grade of oil fields (enhanced oil recovery - EOR).

Reason: Enhancement of European oil field recovery grades is important: an increase of 1-2 per cent in reserves would be extremely beneficial to the European economy in the 21st century.

On page 34: at v)

the fourth indent should be amended as follows:

- the elaboration of scenarios on economy/environment/energy interactions at regional, national, European and global levels.

Reason: Although many of the renewable energy supplies are high in energy they are concentrated in small areas close to source but are environmentally friendly and require only modest capital investment. Examples include geothermal fields and heat pump technology using heat present in the subsurface rocks or in groundwater.

On page 34: at vi) The city of tomorrow

the first indent needs to be amended as follows:

- new models for the sustainable development of European cities, based on knowledge of their geological environment, the elaboration of medium - and long-term socio-economic scenarios and research, development and demonstration activities focusing in particular on problems of town planning and architecture, social integration, safety, energy efficiency and conservation (in particular in buildings and in integrated management of transport) and democratic information networks (the concept of digital cities”);

Reason: European Union policy to date has not addressed the hidden but structurally critical geological space beneath European cities. Underground problems caused by subsidence, ground failure or overloading caused by poorly planned high-rise buildings can cause very large material losses of life and built property. Out of 55 environmental indicators cited in the urban environment section of the Dobris Report however none deal with the quality or stability of the soil or underground space and only one is related to drinking water quality. Deficient knowledge of local geology renders insecure many European city managements' long term forward planning and decision support systems.

On page 35: at vi) The city of tomorrow

a fourth indent needs to be added as follows:

- reclamation and detoxification of contaminated or derelict urban land.

Reason: Many European city areas include large tracts of land in need of remediation and unsuitable for housing or recreational development because of soils contaminated by former industrial activity, e.g. gas or chemical plants, etc or made derelict (e.g. by excavation, overloading or other mechanical working).

On page 35: at b) Activities for the research and development of generic technologies the first indent needs to be amended as follows:

- to support the development of new and improved industrial materials and the processes for their manufacture: materials resistant to high temperatures and high pressure (e.g. for energy generation and engines); light materials (for transport and construction); functional materials (opto-electronics, biomaterials, sensor and other manufactured items) designed and developed with energy-efficient extraction and recycling in mind;

Reason: The European minerals industry needs the support of forward looking, innovative and continuous RTD in minerals exploration and extraction in order to maintain the supply of diverse high quality mineral supplies which are demanded as raw materials by equally diverse high-technology manufacturing industries in Europe.

On page 35: at b) Activities for the research and development of generic technologies the second indent should be amended as follows:

- for the development of new materials and production technologies in the coal and steel fields, including the chemical and physical characterisation of coal types;

Reason: New research is needed on the chemical and physical characterisation of coals in order to keep pace with the clean combustion technology being developed for modern power stations and to define the specific environmental hazards arising from the emissions of coal-powered stations.

On page 35: at b) Activities for the research and development of generic technologies the third indent should be amended as follows:

- for measurements and tests to support standardisation, action to combat fraud, and the quality of products and services (including the development of high-precision measuring instruments and certified reference measures and materials of mineral or biological origin).

Reason: More critical work is needed to standardise the definition of “complex” mineral commodities to avoid confusion between the different descriptions used by individual EU countries. Industry needs standard definitions and specifications because such information can determine both the market and the end use of a mineral: for instance a feldspar material suitable for ceramic use may not be so for glass manufacture.

THE HORIZONTAL PROGRAMMES

CONFIRMING THE INTERNATIONAL ROLE OF COMMUNITY RESEARCH

On page 36 at: a) Specific actions in the “international cooperation” activity
The first indent should be amended to include a second grouping of countries, as follows:

- Cooperation with certain categories of country:

CEEC: promotion of...

BALTIC SEA AREA: support for research and technological development on the environment and sea and land transportation corridors shared by the countries bordering the Baltic Sea.

NIS: support for...

Reason: The Baltic Sea region is heavily polluted and an important transport corridor and fishing ground shared by nine countries. The condition of the Sea and its catchment area urgently need to be improved by collaboration between the surrounding EU and non-EU countries.

Page 39: IMPROVING HUMAN POTENTIAL

On page 39: at a) Action specific to the “improving human potential” activity
at Line i) Reinforcing the Community’s human research capital
the second indent should be amended as follows:

- a coherent series of “Marie Curie” fellowships including: fellowships for young high-quality researchers with proven research experience, awarded for topics chosen by the researchers themselves; industrial host fellowships awarded to enterprises (including SMEs) for the training of young researchers; host fellowships to help develop high-level research capacity in the less favoured regions of the Community. Supplementary fellowship measures will include those to promote the mobility of researchers in both directions between industry, public sector institutes and academia, and to provide travel bursaries to centres of excellence for doctoral studies.

Reason: The public sector research institutes are important players in all interchange schemes as they carry out much applied research and maintain large laboratory facilities or large databases, information banks and libraries. Three-way exchanges of this type between sectors have greatly benefited RTD activities in countries such as Australia, Canada and the United States and have helped scientists and technologists to develop balanced technical, management and dissemination skills and improved cross-sectoral communication.

ANNEX IV

Page 42 : RULES FOR FINANCIAL PARTICIPATION BY THE COMMUNITY

On pages 42-44 the ranking of the activities should be changed as follows:

On page 43 (*move to first place*) **c) Support for networks**

Reason: A major problem in European RTD is the transfer of scientific results to industry and in particular SMEs. Regional networks will preferably develop projects based on local need scenarios and will thus produce results which are relevant and applicable by local or regional SMEs. Support should be concentrated on regional thematic networking focused on local spatial and practical problems of immediate importance to the agenda agreed between the Community and the area represented rather than on long term issues of basic research.

On page 44 (*move to second place*) **d) Concerted actions (to coordinate existing national RTD projects)**

Reason: Priority should be given to projects which are proposed by established thematic networks that typically represent a maximum of competence and provide added value to existing national RTD projects by furthering access to harmonised and compatible pan - European data systems for planners and decision makers.

On page 43 (*move to third place*) **b) Training fellowships**

Reason: Training and exchange of staff should be considered a necessary part of any project and a way to provide sustainable implementation of programme results and long term maximisation of benefits.

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