

Appendix 1

Annex 1

Structure of the research programmes
of the fifth framework programme
1998-2002 (indirect actions)
and their thematic priorities according
to their workprogrammes

**Structure of the research programmes of the fifth framework programme 1998-2002:
(indirect actions):**

1. 5th EC Framework programme

1.1. *First activity*

1.1.1. Quality of Life and Management of Living Resources

1.1.2. User-friendly Information society

1.1.3. Competitive and Sustainable Growth

1.1.4. Energy, Environment and Sustainable Development

1.2. *Second activity*

1.2.1. Confirming the International Role of Community Research

1.3. *Third activity*

1.3.1. Promotion of Innovation and Encouragement of SME participation

1.4. *Fourth activity*

1.4.1. Improving the Human Research Potential & the Socio-Economic Knowledge Base

2. Euratom Framework Programme

2.1 *Nuclear Energy*

**Structure of the thematic priorities of the fifth framework programme 1998-2002:
(indirect actions):**

1. EC Framework programme

1.1. First activity

1.1.1. Quality of Life and Management of Living Resources

1.1.1.-1. Key action Food, Nutrition and Health

1.1.1.-1.1 Development of safe and flexible and new and/or improved manufacturing processes and technologies

1.1.1.-1.1.1. Novel and improved biological raw materials for high quality food

1.1.1.-1.1.2. Advanced and optimised food technologies, packaging systems and process control

1.1.1.-1.1.3. Quality monitoring and traceability throughout the food chain

1.1.1.-1.2 Development of tests to detect and processes to eliminate infectious and toxic agents throughout the food chain

1.1.1.-1.2.1. Improved understanding and control of contamination conditions.

1.1.1.-1.2.2. Rapid detection tests for pathogens, xenobiotics and hormones.

1.1.1.-1.2.3. New and safer methods of food production and distribution.

1.1.1.-1.2.4. New methodologies for assessing microbial, chemical and allergenic risks and exposures.

1.1.1.-1.3. Research into the role of food in promoting and sustaining health

1.1.1.-1.3.1. Role and impact of food on physiological functions, physical and mental performance

1.1.1.-1.3.2. Particular nutritional needs of defined population groups.

1.1.1.-1.3.3. Links between diet and chronic diseases and disorders including the genetic factors involved.

1.1.1.-1.3.4. Consumer attitudes and reactions with regard to food products, food processing and labelling.

1.1.1.-2. Key action Control of Infectious Diseases

1.1.1.-2.1. Development of improved or novel mono-component, multi-component and combined vaccines

1.1.1.-2.1.1. Discovery phase and preclinical development of vaccines.

1.1.1.-2.1.2. Development of European networks for clinical and field trials of vaccines.

1.1.1.-2.1.3. Underlying mechanisms ("transdisease vaccinology")

1.1.1.-2.2. Strategies to identify and control infectious diseases

1.1.1.-2.2.1. Comprehensive approaches for the treatment of, and protection against, human and animal infectious diseases.

1.1.1.-2.2.2. Antimicrobial drug resistance and changes in virulence.

1.1.1.-2.2.3. Diagnostic tests for humans and animals.

1.1.1.-2.2.4. Risk assessment and transmission.

1.1.1.-2.3. Aspects of public health and care delivery systems

1.1.1.-2.3.1. Organisational and economic aspects of public health.

1.1.1.-2.3.2. Surveillance, monitoring and evaluation methodologies in prevention and cure.

1.1.1.-2.3.3. Methodologies for product safety surveillance in the market place.

1.1.1.-3. Key action The "Cell factory"

1.1.1.-3.1. New and innovative health-related processes and products

1.1.1.-3.1.1. Development of new diagnostics, therapeutic substances and strategies.

1.1.1.-3.1.2. New and improved technologies for biological productions.

1.1.1.-3.1.3. Novel in-vitro testing as alternatives to animal testing.

1.1.1.-3.2. Energy – efficient bioremediation and waste biotreatment processes

1.1.1.-3.2.1. New bioprocesses for preventing industrial pollution, treating, upgrading, and/or recycling bioaccumulable wastes and industrial by-products.

1.1.1.-3.2.2. Bioassays and biosensors.

1.1.1.-3.2.3. Biodegradation of recalcitrant chemicals.

1.1.1.-3.2.4. Biodiversity and ecological dynamics of natural and introduced populations.

1.1.1.-3.2.5. Development of methods and strategies to ensure the safety of new biomolecules or bioprocesses, and for the identification of recombinant organisms and their residues in the environment and their impact on human and animal health.

1.1.1.-3.3. New biological and biotechnological processes and products from cell factories

1.1.1.-3.3.1. Exploiting the cellular and molecular characteristics of organisms

1.1.1.-3.3.2. High value-added products and processes involving / derived from micro-organisms, plants and animals.

- 1.1.1.-3.3.3. Functional biomolecules and biocatalysts.
- 1.1.1.-3.3.4. Identification and sustainable use of metabolic and genetic diversity as a source of new valuable products.
- 1.1.1.-4. Key action Environment and Health
- 1.1.1.-4.1. Diseases and allergies related to or influenced by the environment, their prevention and treatment
- 1.1.1.-4.1.1. Analysis and quantification of the impact of environmental factors on human health.
- 1.1.1.-4.1.2. Assessment of the relative importance of, and the interactions between, factors impinging on health.
- 1.1.1.-4.1.3. Development of an integrated approach to risk management - taking into account environmental and public health aspects
- 1.1.1.-4.2. Diagnosis, risk assessment and risk management processes to reduce causes and harmful environmental health effects
- 1.1.1.-4.2.1. Development of methods to assess environmental hazards including mixed exposures, cumulative and low dose effects
- 1.1.1.-4.2.2. Improvement of predictive toxicity testing and mechanism-based risk assessment consistent with the aim of the reduction and eventual replacement of animal testing.
- 1.1.1.-4.2.3. Improved methods and technologies for long and short-term exposure and effects assessment including bio-markers (and bio-indicators) of environmental exposure, and susceptibility to environmental agents.
- 1.1.1.-5. Key action Sustainable Agriculture, Fisheries and Forestry
- 1.1.1.-5.1. New and sustainable systems of production, including breeding methods and exploitation in agriculture, fisheries and aquaculture
- 1.1.1.-5.1.1. Sustainable agriculture
- 1.1.1.-5.1.2. Sustainable fisheries and aquaculture
- 1.1.1.-5.2. The integrated production and exploitation of biological materials for non-food users
- 1.1.1.-5.2.1. Bulk chemicals (lubricants, paints, detergents, solvents)
- 1.1.1.-5.2.2. Non-wood fibre composites
- 1.1.1.-5.2.3. Bioplastics and biopolymers
- 1.1.1.-5.2.4. Speciality chemicals (biological control products, cosmetics, food ingredients, drugs and vaccines)
- 1.1.1.-5.2.5. Biofuels
- 1.1.1.-5.3. Sustainable and multi-purpose utilisation of forest resources; the integrated forestry-wood chain
- 1.1.1.-5.3.1. Multifunctional management of forests
- 1.1.1.-5.3.2. Strategies for the sustainable and multipurpose utilisation of forest resources; the forestry-wood chain
- 1.1.1.-5.4. Support for common policies – development of methods of control, surveillance and protection including protection of land and prevention of soil erosion. Pre-legislative research designed to provide a scientific basis for Community legislation.
- 1.1.1.-5.4.1. Community agriculture and the international context
- 1.1.1.-5.4.2. CAP measures and related activities including socio-economic aspects
- 1.1.1.-5.4.3. Monitoring and enforcement of the CFP
- 1.1.1.-5.4.4. Social and economic basis of the CFP
- 1.1.1.-5.5. New tools and models for the integrated and sustainable development of rural and other relevant areas
- 1.1.1.-5.5.1. Analysing rural situations, changes and trends
- 1.1.1.-5.5.2. Conceptualising integrated development of rural and other relevant areas
- 1.1.1.-5.5.3. Assessing rural and coastal development performance and policies
- 1.1.1.-6. Key action The Ageing Population and Disabilities
- 1.1.1.-6.1. Age-related illnesses and health problems
- 1.1.1.-6.2. Determinants of health ageing
- 1.1.1.-6.3. Demography and epidemiology of ageing
- 1.1.1.-6.4. Coping with functional limitations in old age
- 1.1.1.-6.5. Health and social care services to older people
- 1.1.1.-7. Chronic and degenerative diseases, cancer, diabetes, cardiovascular diseases and rare diseases
- 1.1.1.-7.1. Aetiology, pathophysiology, progress and outcome of diseases
- 1.1.1.-7.2. Evaluation of therapies through multinational, large scale studies/trials
- 1.1.1.-7.3. Optimised use of databases, registries, reagents and sample banks
- 1.1.1.-8. Research into genomes and diseases of genetic origin

- 1.1.1.-8.1. Interpretation of the meaning of genome information
- 1.1.1.-8.2. Acquisition of, access to and interpretation of genomic and functional data
- 1.1.1.-8.3. Development of novel expression systems, model organisms, mutant, transgenic and hybrid organisms
- 1.1.1.-8.4. Development and application of underpinning biochemistry, biophysical, statistical and computational approaches
- 1.1.1.-9. Neurosciences
- 1.1.1.-9.1. Cell communication including mechanisms of learning and memory
- 1.1.1.-9.2. Brain theories, computational neuroscience and neuroinformatics
- 1.1.1.-9.3. Brain development, disorders and repair and their clinical, epidemiological and social implications
- 1.1.1.-9.4. Behaviour, cognition and functional mapping of the brain
- 1.1.1.-10. Public health and health services research
- 1.1.1.-10.1. Public health research, health services research and health and safety
- 1.1.1.-10.2. Fighting drug related problems
- 1.1.1.-11. Research relating to the persons with disabilities
- 1.1.1.-11.1. Determinants of impairment, disability and handicap
- 1.1.1.-11.2. Methodologies for the assessment of quality of life
- 1.1.1.-11.3. Innovative technological research for the rehabilitation and assistance
- 1.1.1.-11.4. Health and social care delivery
- 1.1.1.-12. Biomedical ethics and bioethics in the context of respect for fundamental human values
- 1.1.1.-12.1. Ethical aspects of scientific and technological developments
- 1.1.1.-12.2. Ethical framework for life sciences
- 1.1.1.-12.3. Public policies, law and bioethics
- 1.1.1.-12.4. Bioethics infrastructures and methodologies
- 1.1.1.-13. Socio-economic aspects of life sciences and technologies
- 1.1.1.-13.1. Development of indicators and knowledge bases relevant to public policy decision making and regulation; technology evaluation and assessment, public perception and information
- 1.1.1.-13.2. Analysis of the links between life sciences and technologies and policies in the field of industry, agriculture, fisheries, food, environment, sustainable development, public health
- 1.1.1.-13.3. Analysis of social and economic driving forces and of barriers to development and exploitation of new opportunities in the bioindustries
- 1.1.1.-14. Support for research infrastructures
- 1.1.1.-14.1. Biological collections
- 1.1.1.-14.2. Biological information resources
- 1.1.1.-14.3. Clinical research facilities
- 1.1.1.-14.4. Pre-clinical research facilities
- 1.1.1.-14.5. Facilities for aquaculture and fishery research
- 1.1.2. **User-friendly information society (IST)**
- 1.1.2.-1. Key action Systems and services for the citizen
- 1.1.2.-1.1. RTD spanning key action 1
- 1.1.2.-1.1.1. New models for providing services to citizens
- 1.1.2.-1.2. Health
- 1.1.2.-1.2.1. Personal health systems
- 1.1.2.-1.2.2. Clinical, biological, managerial and imaging systems for health professionals
- 1.1.2.-1.2.3. New generation tele-medicine services
- 1.1.2.-1.3. Persons with special needs, including the disabled and the elderly
- 1.1.2.-1.3.1. Systems and services for independent living
- 1.1.2.-1.4. Administrations
- 1.1.2.-1.4.1. Systems enhancing the efficiency and user-friendliness of administrations
- 1.1.2.-1.4.2. On-line support to democratic processes
- 1.1.2.-1.5. Environment
- 1.1.2.-1.5.1. Intelligent environmental monitoring and management systems
- 1.1.2.-1.5.2. Environment risk and emergency management systems
- 1.1.2.-1.6. Transport and tourism
- 1.1.2.-1.6.1. Intelligent infrastructure and mobility management
- 1.1.2.-1.6.2. Systems for intelligent vehicles
- 1.1.2.-1.6.3. Systems and services for tourism

- 1.1.2.-2. Key action New Methods of Work and Electronic Commerce
- 1.1.2.-2.1. RTD spanning key action 2
- 1.1.2.-2.1.1. New perspectives for work and business
- 1.1.2.-2.1.2. Corporate knowledge management
- 1.1.2.-2.2. Flexible, mobile and remote working methods and tools
- 1.1.2.-2.2.1. Workplace design
- 1.1.2.-2.2.2. Team work
- 1.1.2.-2.2.3. Dynamic networked organisations
- 1.1.2.-2.3. Management systems for suppliers and consumers
- 1.1.2.-2.3.1. Digital design and life-cycle management for products and services
- 1.1.2.-2.3.2. New market mediation systems
- 1.1.2.-2.3.3. Enhanced consumer-supplier relationships
- 1.1.2.-2.4. Information and network security and other confidence-building technologies
- 1.1.2.-2.4.1. Identification and authentication
- 1.1.2.-2.4.2. Secure electronic financial transactions
- 1.1.2.-2.4.3. Digital object transfer
- 1.1.2.-3. Key action Multimedia Content and Tools
- 1.1.2.-3.1. RTD spanning key action 3
- 1.1.2.-3.1.1. Social and business models for multimedia content
- 1.1.2.-3.2. Interactive publishing, digital content and cultural heritage
- 1.1.2.-3.2.1. Authoring and design systems
- 1.1.2.-3.2.2. Content management and personalisation
- 1.1.2.-3.2.3. Access to scientific and cultural heritage
- 1.1.2.-3.2.4. Digital preservation of cultural heritage
- 1.1.2.-3.3. Education and training
- 1.1.2.-3.3.1. Open platforms and tools for personalised learning
- 1.1.2.-3.3.2. The flexible university
- 1.1.2.-3.3.3. Advanced training systems
- 1.1.2.-3.4. Human language technologies
- 1.1.2.-3.4.1. Multilinguality in digital content and services
- 1.1.2.-3.4.2. Natural interactivity
- 1.1.2.-3.5. Information access, filtering, analysis and handling
- 1.1.2.-3.5.1. Multi-sensory forms of content
- 1.1.2.-3.5.2. Media representation and access: new models and standards
- 1.1.2.-4. Key action Essential Technologies and Infrastructures
- 1.1.2.-4.1. RTD spanning key action IV
- 1.1.2.-4.1.1. Convergence and integration: scenarios and analyses
- 1.1.2.-4.2. Technologies for management of information processing, communications and networks, including broad-band, together with their implementation, interoperability and application
- 1.1.2.-4.2.1. Concurrent systems
- 1.1.2.-4.2.2. Real-time systems
- 1.1.2.-4.2.3. Network integration, interoperability and interworking
- 1.1.2.-4.2.4. Technologies for network management and service-level interworking
- 1.1.2.-4.2.5. All-optical and terabit networks
- 1.1.2.-4.3. Technologies and engineering for software, systems and services, including high-quality statistics
- 1.1.2.-4.3.1. Component-based software engineering
- 1.1.2.-4.3.2. Engineering of intelligent services
- 1.1.2.-4.3.3. Methods and tools for intelligence and knowledge sharing
- 1.1.2.-4.3.4. Information management methods
- 1.1.2.-4.4. Real-time and large-scale simulation and visualisation technologies
- 1.1.2.-4.4.1. Real-time simulation and visualisation technologies
- 1.1.2.-4.4.2. Large scale shared virtual and augmented environments
- 1.1.2.-4.5. Mobile and personal communications and systems, including satellite-related systems and services
- 1.1.2.-4.5.1. Re-configurable radio systems and networks
- 1.1.2.-4.5.2. Terrestrial wireless systems and networks
- 1.1.2.-4.5.3. Integrated satellite systems and services
- 1.1.2.-4.5.4. Advanced tools and technologies for wireless communications
- 1.1.2.-4.6. Interfaces making use of the various senses
- 1.1.2.-4.6.1. Adaptable multi-sensory interfaces

- 1.1.2.-4.7 Peripherals, sub-systems and microsystems
- 1.1.2.-4.7.1 Peripherals technologies
- 1.1.2.-4.7.2 Subsystems technologies
- 1.1.2.-4.7.3 Microsystems
- 1.1.2.-4.8 Microelectronics
- 1.1.2.-4.8.1 Microelectronics and opto-electronics design
- 1.1.2.-4.8.2. Application competencies
- 1.1.2.-4.8.3 Processes, equipment and materials
- 1.1.2.-4.8.4 Advanced opto-electronics and microelectronics
- 1.1.2.-5 Cross programme themes
- 1.1.2.-5.1 Cross programme actions
- 1.1.2.-5.1.1 CPA1: Integrated applications platforms and services
- 1.1.2.-5.1.2 CPA2: Dependability in services and technologies
- 1.1.2.-5.1.3 CPA3: Design-for-all for an inclusive information society
- 1.1.2.-5.1.4 CPA4: New indicators and statistical methods
- 1.1.2.-5.2 Cross-programme clusters
- 1.1.2.-5.2.1 CPCO: Open Cross-programme clusters
- 1.1.2.-6 Generic activities: Future and emerging technologies
- 1.1.2.-6.1 FET O: Open domain
- 1.1.2.-6.2 Proactive Initiatives
- 1.1.2.-6.2.1 FET P1: Quantum information processing and communications
- 1.1.2.-6.2.2 FET P2: Universal information ecosystems
- 1.1.2.-6.2.3 FET P3: Nanotechnology information devices
- 1.1.2.-7 Support for research infrastructures: research networking
- 1.1.2.-7.1 RN1: Broad-band interconnection of national research, education and training networks, and testbeds
- 1.1.2.-7.2 RN2: Testbeds for advanced networking and application experiments
- 1.1.2.-8 IST support measures
- 1.1.2.-8.1 Take-up Measures
- 1.1.2.-8.2 Concerted actions and thematic networks
- 1.1.2.-8.3 Accompanying measures
- 1.1.2.-8.4 Technology stimulation projects to encourage and facilitate SME participation
- 1.1.2.-8.5 Training Fellowships

- 1.1.3. **Competitive and Sustainable Growth****

- 1.1.3.-1 Key Action Innovative Products, Processes and Organisation
- 1.1.3.-1.1 Efficient production, including design, manufacturing and control
- 1.1.3.-1.1.1 Integrated « product –service » design
- 1.1.3.-1.1.2 Advanced production and construction technologies
- 1.1.3.-1.1.3 Safe and reliable extended life of products and industrial systems
- 1.1.3.-1.2 Intelligent production
- 1.1.3.-1.2.1 Design of products and production-service systems
- 1.1.3.-1.2.2 Intelligent manufacturing and processing
- 1.1.3.-1.2.3 Monitoring and optimal use of industrial systems
- 1.1.3.-1.3 Eco-efficient processing and design
- 1.1.3.-1.3.1 Eco-efficient design of products and processes
- 1.1.3.-1.3.2 Cleaner processes products and eco-efficient technologies
- 1.1.3.-1.3.3 Product recovery and waste recycling
- 1.1.3.-1.4 Organisation of production and work
- 1.1.3.-1.4.1 New methods of organisation, work and human capital improvement
- 1.1.3.-1.4.2 Adaptation of enterprises and human oriented production
- 1.1.3.-1.4.3 Knowledge, learning and management of change
- 1.1.3.-2 Key Action Sustainable Mobility and Intermodality
- 1.1.3.-2.1 Socio-economic scenarios for mobility of people and goods
- 1.1.3.-2.1.1 Quantitative tools for decision-making
- 1.1.3.-2.1.2 Driving forces in transport
- 1.1.3.-2.1.3 Policies for sustainable mobility
- 1.1.3.-2.2 Infrastructures and their interfaces with transport means and systems
- 1.1.3.-2.2.1 Infrastructure development and maintenance
- 1.1.3.-2.2.2 Environment

- 1.1.3.-2.2.3 Safety
- 1.1.3.-2.2.4 Security
- 1.1.3.-2.2.5 Human factors
- 1.1.3.-2.3 Modal and intermodal transport management systems
- 1.1.3.-2.3.1 Traffic management systems
- 1.1.3.-2.3.2 Transport and mobility services
- 1.1.3.-2.3.3 Second generation satellite navigation and positioning systems
- 1.1.3.-3 Key Action Land Transport and Marine Technologies
- 1.1.3.-3.1 Critical technologies for road and rail transport
- 1.1.3.-3.1.1 Efficient, clean and intelligent road and rail transport vehicle technologies
- 1.1.3.-3.1.2 Innovative and safe road and rail transport vehicle concepts
- 1.1.3.-3.1.3 Human/vehicle interaction
- 1.1.3.-3.2 Critical marine technologies
- 1.1.3.-3.2.1 Efficient, safe and environmentally friendly ships and vessels
- 1.1.3.-3.2.2 Maximising interoperability and vessel performances
- 1.1.3.-3.2.3 Innovative technologies for the monitoring, exploration and sustainable exploitation of the sea
- 1.1.3.-4 Key Action New Perspectives in Aeronautics
- 1.1.3.-4.1 Reducing aircraft development cost and time to market
- 1.1.3.-4.1.1 Advanced design systems and tools
- 1.1.3.-4.1.2 Manufacturing
- 1.1.3.-4.1.3 Product quality control
- 1.1.3.-4.2 Improving aircraft efficiency
- 1.1.3.-4.2.1 Aerodynamics
- 1.1.3.-4.2.2 Structures and materials application
- 1.1.3.-4.2.3 Propulsion
- 1.1.3.-4.2.4 Systems and equipment
- 1.1.3.-4.2.5 Configurational and interdisciplinary aspects
- 1.1.3.-4.3 Improving environmental friendliness of aircraft
- 1.1.3.-4.3.1 Low pollutant emissions
- 1.1.3.-4.3.2 External noise
- 1.1.3.-4.3.3 Cabin environment
- 1.1.3.-4.4 Improving operational capability and safety of aircraft
- 1.1.3.-4.4.1 Air traffic management (ATM) related air borne systems
- 1.1.3.-4.4.2 Operational Maintenance
- 1.1.3.-4.4.3 Accident prevention
- 1.1.3.-4.4.4 Accident survivability
- 1.1.3.-5 RTD Activities of a Generic Nature : materials and their technologies for production and transformation and new and improved materials and production technologies in the steel field
- 1.1.3.-5.1 Cross-cutting generic materials technologies
- 1.1.3.-5.2 Advanced functional materials
- 1.1.3.-5.3 Sustainable chemistry
- 1.1.3.-5.4 Expanding the limits and durability of structural materials
- 1.1.3.-5.5 Iron and steel production
- 1.1.3.-5.6 Steel casting, rolling and downstream treatment
- 1.1.3.-5.7 Steel utilisation
- 1.1.3.-6 RTD Activities of a Generic Nature : Measurements and Testing
- 1.1.3.-6.1 Instrumentation
- 1.1.3.-6.2 Methodologies for measurements and testing
- 1.1.3.-6.3 Support to the development of certified reference materials (CRMs)
- 1.1.3.-7 Support to Research Infrastructures
- 1.1.3.-7.1 Support activities to medium and large scale facilities
- 1.1.3.-7.2 Setting up of virtual institutes
- 1.1.3.-7.3 Reference databases
- 1.1.3.-7.4 Measurement and quality management infrastructures

1.1.4. Energy, Environment and Sustainable Development

Part A. Environment and Sustainable Development

- 1.1.4.-1. Key action Sustainable Management and Quality of Water
- 1.1.4.-1.1. Integrated management and sustainable use of water resources at catchment scale
- 1.1.4.-1.1.1. Strategic planning and integrated management methodologies and tools at catchment scale
- 1.1.4.-1.1.2. Socio-economic aspects of sustainable use of water
- 1.1.4.-1.1.3. Operational management schemes and decision support systems
- 1.1.4.-1.2. Ecological quality of freshwater ecosystems and wetlands
- 1.1.4.-1.2.1. Ecosystem functioning
- 1.1.4.-1.2.2. Ecological quality targets
- 1.1.4.-1.3. Treatment and purification technologies
- 1.1.4.-1.3.1. Management of water in the city
- 1.1.4.-1.3.2. Waste water treatment and re-use
- 1.1.4.-1.4. Pollution prevention
- 1.1.4.-1.4.1. Abatement of water pollution from contaminated land, landfills and sediments
- 1.1.4.-1.4.2. Combating diffuse pollution
- 1.1.4.-1.5. Surveillance, early warning and communication systems
- 1.1.4.-1.5.1. Pollution surveillance and control
- 1.1.4.-1.5.2. Improved flood and drought forecasting
- 1.1.4.-1.6. Regulation of stocks and technologies for arid and semi-arid regions and generally water-deficient regions
- 1.1.4.-1.6.1. Water resources use and management
- 1.1.4.-1.6.2. Prevention and mitigation of saline water intrusion
- 1.1.4.-1.6.3. Technological development and management tools
- 1.1.4.-2. Key action Global Change, Climate and Biodiversity
- 1.1.4.-2.1. To understand, detect, assess and predict global change processes
- 1.1.4.-2.1.1. Atmospheric composition change
- 1.1.4.-2.1.2. Stratospheric ozone depletion
- 1.1.4.-2.1.3. Climate change prediction and scenarios
- 1.1.4.-2.1.4. Climate variability and abrupt climate changes
- 1.1.4.-2.2. To foster better understanding of terrestrial (including freshwater) and marine ecosystems and their interactions
- 1.1.4.-2.2.1. Ecosystem vulnerability
- 1.1.4.-2.2.2. Interactions between ecosystems and the carbon and nitrogen cycles
- 1.1.4.-2.2.3. Assessing and conserving biodiversity
- 1.1.4.-2.3. Scenarios and strategies for responding to global issues
- 1.1.4.-2.3.1. Mitigation and adaptation to global change
- 1.1.4.-2.3.2. Reconciling the conservation of biodiversity with economic development
- 1.1.4.-2.3.3. Fighting land degradation and desertification
- 1.1.4.-2.3.4. Compatibility between EU and international environmental policies and links with trade
- 1.1.4.-2.4. European component of the global observing systems
- 1.1.4.-2.4.1. Better exploitation of existing data and adaptation of existing observing systems
- 1.1.4.-2.4.2. Development of new long-term observing capacity
- 1.1.4.-3. Key action Sustainable Marine Ecosystems
- 1.1.4.-3.1. Improved knowledge of marine processes, ecosystems and interactions
- 1.1.4.-3.1.1. Better assessment of naturally occurring mechanisms of ecosystem functioning
- 1.1.4.-3.1.2. Assessment of sedimentary systems for the sustainable management and use of the shelf, slope and deep-sea floor
- 1.1.4.-3.1.3. Transport pathways and impacts of pollutants, key elements and nutrients in the marine environment
- 1.1.4.-3.2. Reducing the anthropogenic impact on biodiversity and the sustainable functioning of marine ecosystems, and facilitating the development of safe, economic and sustainable exploitation technologies
- 1.1.4.-3.2.1. Reversing the trend in loss of marine biodiversity
- 1.1.4.-3.2.2. Reducing the effects of anthropogenic activities on the marine environment and recovering degraded marine systems
- 1.1.4.-3.2.3. Technologies for safe, sustainable and economic exploitation of marine resources
- 1.1.4.-3.3. Monitoring and managing coastal processes and the coastal zone
- 1.1.4.-3.3.1. Integrated studies on land-ocean interaction
- 1.1.4.-3.3.2. Coastal zone changes
- 1.1.4.-3.3.3. Coastal protection against flooding and erosion
- 1.1.4.-3.3.4. Coastal processes monitoring

- 1.1.4.-3.4. Operational forecasting of environmental constraints of offshore activities
- 1.1.4.-4. Key action City of Tomorrow and Cultural Heritage
- 1.1.4.-4.1. Sustainable city planning and rational resource management
- 1.1.4.-4.1.1. Improving urban governance and decision making
- 1.1.4.-4.1.2. Improving the quality of urban life
- 1.1.4.-4.1.3. Waste reduction and its life cycle management
- 1.1.4.-4.1.4. Economic development, competitiveness and employment
- 1.1.4.-4.2. Protection, conservation and enhancement of European cultural heritage
- 1.1.4.-4.2.1. Improved damage assessment on cultural heritage
- 1.1.4.-4.2.2. Development of innovative conservation strategies
- 1.1.4.-4.2.3. Foster integration of cultural heritage in the urban setting
- 1.1.4.-4.3. Development and demonstration of technologies for safe, economic, clean, effective and sustainable preservation, recovery, renovation, construction, dismantling and demolition of the built environment, in particular for large groups of buildings
- 1.1.4.-4.3.1. Revitalisation of city centres and neighbourhoods
- 1.1.4.-4.4. Comparative assessment and cost effective implementation of strategies for sustainable transport systems in an urban environment
- 1.1.4.-4.4.1. Strategic approaches and methodologies in urban planning towards sustainable urban transport
- 1.1.4.-4.4.2. Comparative assessment and demonstration of new transport technologies and related infrastructure

Part B Energy

- 1.1.4.-5 Key action Cleaner Energy Systems, including Renewable Energies
- 1.1.4.-5.1 Large scale generation of electricity and/or heat with reduced CO₂ emissions from coal, biomass and other fuels, including combined heat and power
- 1.1.4.-5.1.1. Cleaner fuels by substitution and treatment
- 1.1.4.-5.1.2. More efficient energy conversion processes or cycles, including combustion efficiency
- 1.1.4.-5.1.3. More efficient gas turbines
- 1.1.4.-5.1.4. Optimisation of CHP systems
- 1.1.4.-5.2 Development and demonstration, including for decentralised generation, of the main new and renewable energy sources, in particular, biomass, wind and solar technologies, and of fuel cells
- 1.1.4.-5.2.1. Biomass (including waste) conversion systems
- 1.1.4.-5.2.2. Wind energy optimisation
- 1.1.4.-5.2.3. Cost efficient photovoltaic
- 1.1.4.-5.2.4. Solar thermal concentrating systems
- 1.1.4.-5.2.5. Other renewable energies
- 1.1.4.-5.2.6. Efficient, reliable and cost effective fuel cell systems
- 1.1.4.-5.3. Integration of new and renewable energy sources into energy systems
- 1.1.4.-5.3.1. Integrating renewable energy sources into the grid and stand alone systems
- 1.1.4.-5.3.2. Hybrid systems
- 1.1.4.-5.3.3. Improving the acceptability of renewables
- 1.1.4.-5.4. Cost effective environmental abatement technologies for power production
- 1.1.4.-5.4.1. Reduction of local and global environment degrading emissions
- 1.1.4.-6 Key action Economic and Efficient Energy for a Competitive Europe
- 1.1.4.-6.1 Technologies for the rational and efficient end use of energy
- 1.1.4.-6.1.1. Spatial integration
- 1.1.4.-6.1.2. Building sustainability
- 1.1.4.-6.1.3. Efficient space heating, cooling, ventilation, lighting systems and domestic appliances, and integration of renewables into buildings
- 1.1.4.-6.1.4. Transport combustion optimisation with cleaner hydrocarbon and alternative transport fuels
- 1.1.4.-6.1.5. Hybrid and electric drivelines, and energy storage and conversion devices
- 1.1.4.-6.1.6. Proving innovative public and private transport means
- 1.1.4.-6.1.7. Efficient cross-sectoral technologies and better managed industrial processes
- 1.1.4.-6.2. Technologies for the transmission and distribution of energy
- 1.1.4.-6.2.1. Assuring electric power flow reliability and stability and increasing power line efficiency
- 1.1.4.-6.2.2. Interconnection and load shaping

- 1.1.4.-6.2.3. More efficient and safer transport of gas
- 1.1.4.-6.2.4. Cost effective heating and cooling distribution
- 1.1.4.-6.3 Technologies for the storage of energy on both macro and micro scale
- 1.1.4.-6.3.1. Optimising power quality, by means of energy storage, for stand-alone renewable and hybrid systems and for transport
- 1.1.4.-6.3.2. Stability related electrical energy storage
- 1.1.4.-6.3.3. Intermittent storage of energy, including heat and cold storage
- 1.1.4.-6.3.4. Safer, lighter and more energy-efficient gas storage
- 1.1.4.-6.3.5. Reliable high capacity microstorage
- 1.1.4.-6.4 More efficient exploration, extraction and production technologies for hydrocarbons
- 1.1.4.-6.4.1. Cost effective and more efficient exploration and production of hydrocarbons
- 1.1.4.-6.4.2. Deepwaters, marginal fields and new frontiers, including Arctic
- 1.1.4.-6.4.3. Reduced environmental impact and improved safety in exploration and production
- 1.1.4.-6.5. Improving the efficiency of new and renewable energy sources
- 1.1.4.-6.5.1. Cost effective wind turbine components
- 1.1.4.-6.5.2. Cost effective components for photovoltaic module systems and solar thermal concentrating systems
- 1.1.4.-6.5.3. Cost effective components for biomass and waste
- 1.1.4.-6.5.4. Other renewable energy sources
- 1.1.4.-6.6. The elaboration of scenarios on supply and demand technologies in economy/environment/energy (E3) systems and their interactions, and the analysis of the cost effectiveness (based on whole life costs) and efficiency of all energy sources
- 1.1.4.-6.6.1. Technological change anticipation
- 1.1.4.-6.6.2. Prospective and policy impact analysis
- 1.1.4.-6.6.3. Market changes and technology absorption
- 1.1.4.-7 RTD activities of a generic nature
- 1.1.4.-7.1. The fight against major natural and technological hazards
- 1.1.4.-7.2. The development of generic Earth observation satellite technologies
- 1.1.4.-7.3. Socio-economic aspects of environmental change in the perspective of sustainable development
- 1.1.4.-8 RTD activities of a generic nature
- 1.1.4.-8.1 Socio Economic aspects of energy within the perspective of sustainable development: Tools for technology assessment
- 1.1.4.-8.1.1. Acceptability and choices
- 1.1.4.-8.1.2. Innovation
- 1.1.4.-8.1.3. Externalities
- 1.1.4.-8.2 Socio Economic aspects of energy within the perspective of sustainable development: Methodologies for global systems analysis
- 1.1.4.-8.2.1. Economy-environment-energy modelling framework
- 1.1.4.-8.2.2. Matching technology implementing potentials
- 1.1.4.-9 Support for research infrastructures

1.2. *Second activity*

1.2.1. **Confirming the International Role of Community Research**

- 1.2.1.-1. Co-operation with certain categories of third countries
- 1.2.1.-1.1. States in the pre-accession phase
- 1.2.1.-1.2. NIS and CEECs not in the pre-accession phase
- 1.2.1.-1.3. Mediterranean partner countries
- 1.2.1.-1.4. Research for development
- 1.2.1.-1.5. Emerging economies and industrialised countries

1.2.1.-2. Training for researchers

1.2.1.-3. Co-ordination

1.3. *Third activity*

1.3.1. **Promotion of Innovation and Encouragement of SME Participation**

- 1.3.1.-1. Promotion of Innovation
- 1.3.1.-1.1. Studies and Good Practices
- 1.3.1.-1.2. New approaches to technology transfer
- 1.3.1.-2. Encouraging SME participation
- 1.3.1.-2.1. A single complementary entry point
- 1.3.1.-2.2. Joint support and assistance instruments
- 1.3.1.-2.3. Economic and technological intelligence
- 1.3.1.-3. Joint Innovation/SME activities
- 1.3.1.-3.1. European support network for the promotion of research, technology transfer and innovation
- 1.3.1.-3.2. Electronic information services and other means of dissemination
- 1.3.1.-3.3. Intellectual property
- 1.3.1.-3.4. Access to private innovation financing
- 1.3.1.-3.5. Mechanisms to facilitate the setting-up and development of innovative firms
- 1.3.1.-4. Co-ordination and support activities
- 1.3.1.-4.1. Support activities relating to Innovation
- 1.3.1.-4.2. Support activities relating to SME Participation

1.4. *Fourth activity*

1.4.1. Improving the Human Research Potential & the Socio-Economic Knowledge Base

- 1.4.1.-1. Training and Mobility of Researchers
- 1.4.1.-1.1. Research Training Networks
- 1.4.1.-1.2. Marie Curie Fellowships
- 1.4.1.-2. Access to Research Infrastructures
- 1.4.1.-3. Promotion of S/T Excellence
- 1.4.1.-3.1. High-level Scientific Conferences
- 1.4.1.-3.2. Distinctions for high-level research work
- 1.4.1.-3.3. Raising Public Awareness
- 1.4.1.-4. Key action Socio-Economic Knowledge Base
- 1.4.1.-5. Development of S/T Policies
- 1.4.1.-5.1. Strategic Analysis of Specific Political Issues
- 1.4.1.-5.2. Common Basis of Science, Technology and Innovation
- 1.4.1.-6. Accompanying measures for the programme
- 1.4.1.-7. Indicative breakdown of funds for the programme
- 1.4.1.-8. Indicative timetable for the programme

2. Euratom Framework Programme

2.1 *Nuclear Energy*

- 2.1.1. Key action Controlled Thermonuclear Fusion
- 2.1.1.-1. Fusion physics (theoretical, modelling and experimental work), physics of production, fuelling, heating and confinement of fusion plasmas, and of particle and energy removal.
- 2.1.1.-2. Physics and technology of higher-power plasma heating systems (using high frequency waves or neutral particles, non-inductive plasma current drive methods, and plasma fuelling and exhaust systems).
- 2.1.1.-3. Advanced plasma diagnostics, data acquisition, exploitation and interpretation.
- 2.1.1.-4. Technologies for a future experimental reactor (including e.g. superconductors, remote handling).
- 2.1.1.-5. Long-term technology R&D (including e.g. low-activation materials, tritium breeding blankets, safety and environmental aspects, conceptual reactor reference design studies).
- 2.1.1.-6. Analysis of Socio-economic aspects of fusion
- 2.1.2. Key action Nuclear Fission
- 2.1.2.-1. Operational safety of existing installations
- 2.1.2.-2. Safety of the fuel cycle
- 2.1.2.-3. Safety and efficiency of future systems
- 2.1.2.-4. Radiation protection

- 2.1.3.** RTD activities of a generic nature
- 2.1.3.-1** Radiation protection and health
- 2.1.3.-2** Environmental transfer of radioactive material
- 2.1.3.-3** Industrial and medical uses and natural sources of radiation
- 2.1.3.-4** Internal and external dosimetry
- 2.1.4.** Support for research infrastructures

Appendix 1

Annex 2

Country Codes

Appendix 1 – Annex 2 - Country Codes

CODE	COUNTRY	CODE	COUNTRY
B	Belgium	GD	Grenada
DK	Denmark	GE	Georgia
D	Germany	GH	Ghana
EL	Greece	GM	The Gambia
E	Spain	GN	Guinea
F	France	GQ	Equatorial Guinea
IRL	Ireland	GT	Guatemala
I	Italy	GW	Guinea-Bissau
L	Luxembourg	GY	Guyana
NL	Netherlands	HN	Honduras
A	Austria	HR	Croatia
P	Portugal	HT	Haiti
FIN	Finland	HU	Hungary
S	Sweden	ID	Indonesia
UK	United Kingdom	IL	Israel
AD	Andorra	IN	India
AE	United Arab Emirates	IQ	Iraq
AF	Afghanistan	IR	Iran
AG	Antigua and Barbuda	IS	Iceland
AL	Albania	JM	Jamaica
AM	Armenia	JO	Jordan
AO	Angola	JP	Japan
AR	Argentina	KE	Kenya
AU	Australia	KG	Kyrgyzstan
AZ	Azerbaijan	KH	Cambodia
BA	Bosnia and Herzegovina	KI	Kiribati
BB	Barbados	KM	The Comoros
BD	Bangladesh	KN	Saint Kitts and Nevis
BF	Burkina Faso	KP	North Korea
BG	Bulgaria	KR	South Korea
BH	Bahrain	KW	Kuwait
BI	Burundi	KZ	Kazakhstan
BJ	Benin	LA	Laos
BN	Brunei	LB	Lebanon
BO	Bolivia	LC	Saint Lucia
BR	Brazil	LI	Liechtenstein
BS	The Bahamas	LK	Sri Lanka
BT	Bhutan	LR	Liberia
BW	Botswana	LS	Lesotho
BY	Belarus	LT	Lithuania
BZ	Belize	LV	Latvia
CA	Canada	LY	Libya
CD	Democratic Republic of the Congo	MA	Morocco
CF	Central African Republic	MC	Monaco
CG	Congo	MD	Moldova
CH	Switzerland	MG	Madagascar
CI	Côte d'Ivoire	MH	Marshall Islands
CL	Chile	ML	Mali
CM	Cameroon	MM	Myanmar
CN	China	MN	Mongolia
CO	Colombia	MR	Mauritania
CR	Costa Rica	MT	Malta
CU	Cuba	MU	Mauritius
CV	Cape Verde	MV	Maldives
CY	Cyprus	MW	Malawi
CZ	Czech Republic	MX	Mexico
DJ	Djibouti	MY	Malaysia
DM	Dominica	MZ	Mozambique
DO	Dominican Republic	NA	Namibia
DZ	Algeria	NE	Niger
EC	Ecuador	NG	Nigeria
EE	Estonia	NI	Nicaragua
EG	Egypt	NO	Norway
ER	Eritrea	NP	Nepal
ET	Ethiopia	NR	Nauru
FJ	Fiji	NZ	New Zealand
FM	Micronesia	OM	Oman
GA	Gabon	PA	Panama

Appendix 1 – Annex 2 - Country Codes

CODE	COUNTRY
PE	Peru
PG	Papua New Guinea
PH	Philippines
PK	Pakistan
PL	Poland
PS ¹	West Bank and Gaza Strip
PW	Palau
PY	Paraguay
QA	Qatar
RO	Romania
RU	Russia
RW	Rwanda
SA	Saudi Arabia
SB	Solomon Islands
SC	Seychelles
SD	Sudan
SG	Singapore
SI	Slovenia
SK	Slovakia
SL	Sierra Leone
SM	San Marino
SN	Senegal
SO	Somalia
SR	Suriname
ST	São Tomé and Príncipe
SV	El Salvador
SY	Syria
SZ	Swaziland
TD	Chad
TG	Togo
TH	Thailand
TJ	Tajikistan
TM	Turkmenistan
TN	Tunisia
TO	Tonga
TR	Turkey
TT	Trinidad and Tobago
TV	Tuvalu
TW	Taiwan
TZ	Tanzania
UA	Ukraine
UG	Uganda
US	United States
UY	Uruguay
UZ	Uzbekistan
VA	Vatican City
VC	Saint Vincent and the Grenadines
VE	Venezuela
VN	Vietnam
VU	Vanuatu
WS	Samoa
YE	Yemen
YU	Yugoslavia
ZA	South Africa
ZM	Zambia
ZW	Zimbabwe
807 ¹	Former Yugoslav Republic of Macedonia

¹ Provisional code

Appendix 1

Annex 3

NACE codes for business activities

NACE codes for business activities

Division	Description
<i>Section A</i>	<i>Agriculture, hunting and forestry</i>
01	Agriculture, hunting and related service activities
02	Forestry, logging and related service activities
<i>Section B</i>	<i>Fishing</i>
05	Fishing, operation of fish hatcheries and fish farms; service activities incidental to fishing
<i>Section C</i>	<i>Mining and quarrying</i>
10	Mining of coal and lignite; extraction of peat
11	Extraction of crude petroleum and natural gas; service activities incidental to oil and gas extraction, excluding surveying
12	Mining of uranium and thorium ores
13	Mining of metal ores
14	Other mining and quarrying
<i>Section D</i>	<i>Manufacturing</i>
15	Manufacture of food products and beverages
16	Manufacture of tobacco products
17	Manufacture of textiles
18	Manufacture of wearing apparel; dressing and dyeing of fur
19	Tanning and dressing of leather; manufacture of luggage, handbags, saddlery, harness and footwear
20	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials
21	Manufacture of pulp, paper and paper products
22	Publishing, printing and reproduction of recorded media
23	Manufacture of coke, refined petroleum products and nuclear fuel
24	Manufacture of chemicals and chemical products
25	Manufacture of rubber and plastic products
26	Manufacture of other non-metallic mineral products
27	Manufacture of basic metals
28	Manufacture of fabricated metal products, except machinery and equipment
29	Manufacture of machinery and equipment n.e.c.
30	Manufacture of office machinery and computers
31	Manufacture of electrical machinery and apparatus n.e.c.
32	Manufacture of radio, television and communication equipment and apparatus
33	Manufacture of medical, precision and optical instruments, watches and clocks
34	Manufacture of motor vehicles, trailers and semi-trailers
35	Manufacture of other transport equipment
35.1	Building and repairing of ships and boats
35.2	Manufacture of railway and tramway locomotives and rolling stock
35.3	Manufacture of aircraft and spacecraft
a	<i>Manufacture of helicopter</i>
b	<i>Manufacture of aeroplanes for the transport of goods or passengers, for use by the defence forces, for sports or other purposes</i>
c ¹	<i>Manufacture of parts and accessories of the aircraft of this class</i>
Division	Description

¹ Includes: major assemblies such as fuselages, wings, doors, control surfaces, landing gear, fuel tanks, nacelles, airscrews, helicopter rotors and propelled rotor blades, motors and engines of a kind typically found on aircraft, parts of turbojets and turbopropellers

Appendix 1 – Annex 3 – NACE codes for business activities

d ²	<i>Others</i>
36	Manufacture of furniture; manufacturing n.e.c.
37	Recycling
<i>Section E</i>	<i>Electricity, gas and water supply</i>
40	Electricity, gas, steam and hot water supply
41	Collection, purification and distribution of water
<i>Section F</i>	<i>Construction</i>
45	Construction
<i>Section G</i>	<i>Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods</i>
50	Sale, maintenance and repair of motor vehicles and motorcycles; retail sale of automotive fuel
51	Wholesale trade and commission trade, except of motor vehicles and motorcycles
52	Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods
<i>Section H</i>	<i>Hotels and restaurants</i>
55	Hotels and restaurants
<i>Section I</i>	<i>Transport, storage and communication</i>
60	Land transport; transport via pipelines
61	Water transport
61.1	Sea and coastal water transport
e	<i>Transport of passenger or freight over water</i>
f	<i>Operation of excursion, cruise or sightseeing boats</i>
g	<i>Operation of ferries, water taxis, etc.</i>
62	Air transport
h	<i>Transport of passenger or freight by airlines</i>
63	Supporting and auxiliary transport activities; activities of travel agencies
63.1	<i>Cargo handling and storage</i>
63.2	<i>Other supporting transport activities</i>
i	<i>Operation of terminal facilities such as harbours and piers, waterway locks etc.</i>
j	<i>Airport and air-traffic control activities</i>
63.3	Activities of travel agencies and tour operators; tourist assistance activities n.e.c.
63.4	Activities of other transport agencies
k	<i>Forwarding of freight</i>
64	Post and telecommunications
<i>Section J</i>	<i>Financial intermediation</i>
65	Financial intermediation, except insurance and pension funding
66	Insurance and pension funding, except compulsory social security
67	Activities auxiliary to financial intermediation
<i>Section K</i>	<i>Real estate, renting and business activities</i>
70	Real estate activities
Division	Description
71	Renting of machinery and equipment without operator and of personal and household goods
72	Computer and related activities

² This includes: manufacture of gliders, hang-gliders, manufacture of dirigibles and balloons, manufacture of spacecraft and spacecraft launch vehicles, satellites, planetary probes, orbital stations, shuttles, manufacture of aircraft launching gear, deck arresters, etc., manufacture of ground flying trainers. However 35.3 should **exclude**: manufacture of parachutes, military ballistic missiles, ignition parts and other electrical parts for internal combustion engines, instruments used on aircraft, and air navigation systems.

Appendix 1 – Annex 3 – NACE codes for business activities

73	Research and development
1	<i>Research and experimental development on natural sciences and engineering</i>
m	<i>Research and experimental development on social sciences and humanities</i>
74	Other business activities
<i>Section L</i>	<i>Public administration and defence; compulsory social security</i>
75	Public administration and defence; compulsory social security
<i>Section M</i>	<i>Education</i>
80	Education
<i>Section N</i>	<i>Health and social work</i>
85	Health and social work
<i>Section O</i>	<i>Other community, social and personal service activities</i>
90	Sewage and refuse disposal, sanitation and similar activities
91	Activities of membership organisations n.e.c.
92	Recreational, cultural and sporting activities
93	Other service activities
<i>Section P</i>	<i>Private households with employed persons</i>
95	Private households with employed persons
<i>Section Q</i>	<i>Extra-territorial organisations and bodies</i>
99	Extra-territorial organisations and bodies