COUNCIL DECISION

of 19 December 2006

concerning the Specific Programme to be carried out by means of direct actions by the Joint Research Centre under the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007 to 2013)

(2006/975/EC)

THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 166(4) thereof,

Having regard to the proposal from the Commission,

Having regard to the Opinion of the European Parliament[1],

Having regard to the Opinion of the European Economic and Social Committee[2],

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1 Opinion of 30 November 2006 (not yet published in the Official Journal).

2 OJ C 185, 8.8.2006, p. 10.

Whereas:

(1) In accordance with Article 166(3) of the Treaty, Decision No 967/2006/EC of the European Parliament and of the Council of 20 December 2006 concerning the Seventh Framework Programme of the European Community for research, technological development and demonstration activities, (2007-2013) [1] (hereinafter referred to as "the Framework Programme") is to be implemented through specific programmes that define detailed rules for their implementation, fix their duration and provide for the means deemed necessary.

(2) The Joint Research Centre, hereinafter referred to as "the JRC" should carry out so-called direct R&D activities under a JRC Specific Programme implementing the EC Framework Programme.

(3) In implementing its mission, the JRC should provide the EU policy-making process with customer-driven scientific and technical support, ensuring support to the implementation and monitoring of existing policies and responding to new policy demands. In order to achieve its mission the JRC should carry out research of the highest comparable European quality, including by maintaining its own level of scientific excellence.

(4) The direct actions conducted by the JRC should be implemented by the present Specific Programme. In implementing this Specific Programme in accordance with its mission, the JRC should place particular emphasis on areas of key concern for the Union: prosperity in a knowledge-intensive society, solidarity, sustainability and responsible management of resources, security and freedom, and Europe as world partner.

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[1] OJ L 381,30.12.2006.

(5) This Specific Programme should be implemented in a flexible, efficient and transparent manner, taking into account the relevant need of JRC's user and Community polices, as well as respecting the objective of protecting the Community's financial interests. The research activities carried out under the programme should be adapted where appropriate to these needs and to scientific and technological developments and aim to achieve scientific excellence.

(6) The rules for participation of undertakings, research centres and universities and for the dissemination of research results, for the Framework Programme (hereinafter referred as 'the rules for participation and dissemination') relating to direct actions should also apply to the R&D activities carried out under this Specific Programme.

(7) For the purpose of implementing this programme, in addition to cooperation covered by the Agreement on the European Economic Area or by an Association Agreement, it may be appropriate to engage in international cooperation activities, in particular on the basis of Article 170 of the Treaty, with third countries and international organisations.

(8) In support to EU enlargement and integration, the JRC aims at promoting the integration of new Member States' organisations and researchers in its activities in particular on the implementation of the scientific and technological components of the Community acquis, as well as an increased cooperation with those from Candidate Countries. A progressive opening is also envisaged towards the Neighbouring Countries, specifically on priority topics of the European Neighbourhood Policy.

(9) Research activities carried out within this Specific Programme should respect fundamental ethical principles, including those which are reflected in the Charter of Fundamental Rights of the European Union.

(10) The JRC should continue to generate additional resources through competitive activities; these include participation to the indirect actions of the Framework Programme, third party work and to a lesser extent the exploitation of intellectual property.

(11) Sound financial management of the Framework Programme and its implementation should be ensured in the most effective and user-friendly manner possible, while ensuring legal certainty and the accessibility of the programme for all participants, in compliance with Council Regulation (EC, Euratom) No 1605/2002 of 25 June 2002 on the Financial Regulation applicable to the general budget of the European Communities[1] and Commission Regulation (EC, Euratom) 2342/2002[2] laying down detailed rules for the implementation of that Financial Regulation and any future amendments.

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1 OJ L 248, 16.9.2002, p. 1.

2 OJ L 357, 31.12.2002, p. 1. Regulation as amended by Commission Regulation (EC, Euratom) No 1261/2005 (OJ L 201, 2.8.2005, p. 3).

(12) Appropriate measures – proportionate to the European Communities' financial interests – should be taken to monitor both the effectiveness of the financial support granted and the effectiveness of the utilisation of these funds in order to prevent irregularities and fraud and the necessary steps should be taken to recover funds lost, wrongly paid or incorrectly used in accordance with Council Regulation (EC, Euratom) No 2988/95 of 18 December 1995 on the protection of the European Communities' financial interests[1], Council Regulation (Euratom, EC) No 2185/96 of 11 November 1996 concerning on-the-spot checks and inspections carried out by the Commission in order to protect the European Communities' financial interests against fraud and other irregularities[2] and Regulation (EC) No 1073/1999 of the European Parliament and of the Council concerning investigations conducted by the European Anti-Fraud Office (OLAF)[3].

(13) The Commission should in due course arrange for an independent assessment to be conducted concerning the activities carried out in the fields covered by this programme.

(14) The JRC's Board of Governors has been consulted on the scientific and technological content of this specific programme,

HAS ADOPTED THIS DECISION:

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1 OJ L 312, 23.12.1995, p. 1.
2 OJ L 292, 15.11.1996, p. 2.
3 OJ L 136, 31.5.1999, p. 1.

Article 1

The Specific Programme related to the direct actions in research, technological development and demonstration to be carried out by the Joint Research Centre, hereinafter the "Specific Programme" is hereby adopted for the period from 1 January 2007 to 31 December 2013.

Article 2

The Specific Programme shall establish the activities for the non-nuclear actions of the Joint Research Centre, providing customer driven scientific and technical support to the Community policy making process, ensuring support to the implementation and monitoring of existing policies and responding to new policy demands.

The objectives and the broad lines of those activities are set out in the Annex.

Article 3

In accordance with Annex II of the Framework Programme, the amount deemed necessary for the execution of the Specific Programme shall be EUR 1 751 million.

Article 4

1. All research activities carried out under the Specific Programme shall be carried out in compliance with fundamental ethical principles.

2. The following fields of research shall not be financed under this programme:

– research activity aiming at human cloning for reproductive purposes,

– research activity intended to modify the genetic heritage of human beings which could make such changes heritable[1], research activities intended to create human embryos solely for the purpose of research or for the purpose of stem cell procurement, including by means of somatic cell nuclear transfer.

3. Research on human stem cells, both adult and embryonic, may be financed, depending both on the contents of the scientific proposal and the legal framework of the Member State(s) involved.

Any application for financing for research on human embryonic stem cells shall include, as appropriate, details of licensing and control measures that will be taken by the competent authorities of the Member States as well as details of the ethical approval(s) that will be provided.

As regards the derivation of human embryonic stem cells, institutions, organisations and researchers shall be subject to strict licensing and control in accordance with the legal framework of the Member State(s) involved.

[1] Research relating to cancer treatment of the gonads may be financed.

4. The fields of research set out above shall be reviewed for the second phase of this programme (2010-2013) in the light of scientific advances.

Article 5

1. The Specific Programme shall be implemented by means of the direct actions as established in Annex III to the Framework Programme.

2. The rules for participation and dissemination relating to direct actions shall apply to the Specific Programme.

Article 6

1. The Commission shall draw up a multi-annual Work Programme for the implementation of the specific programme, setting out in greater detail the objectives and scientific and technological priorities set out in the Annex, and the timetable for implementation.

2. The multi-annual Work Programme shall take account of relevant research activities carried out by the Member States, Associated States and European and international organisations. It shall be updated where appropriate.

Article 7

The Commission shall arrange for the independent assessment provided for in Article 7 of the Framework Programme to be conducted concerning the activities carried out in the fields covered by the Specific Programme.

Article 8

This Decision shall enter into force on the third day following its publication in the Official Journal of the European Union.

This Decision is addressed to the Member States.

Done at Brussels, 19 December 2006.

For the Council
The President

K. KORKEAOJA

ANNEX

1. Objective

To provide customer-driven scientific and technical support to the Community policy making process, ensuring support to the implementation and monitoring of existing policies and responding to new policy demands.

2. Approach

The JRC will reinforce its customer-driven orientation, and its strong networking with the scientific community, in the specific context of growth, sustainable development and security by:

– flexibly responding to the developing needs and requirements of the European policy makers,

– focusing attention on issues which are important in terms of societal concern, which have a research component and which have a dominant Community dimension,

– developing partnerships with research centres, universities, industry, public authorities, regulatory bodies in the Member States and with third countries and international bodies;

– reinforcing its competencies and facilities,

– the JRC has focused its resources to respond to the S/T challenges arising from the complex and multi-faceted aspects of Community policy related issues. It has done so by organising its activities around the main policy areas and by establishing synergies with other sources of S/T support available in the Member States. It will further enhance this capacity, also by collaborating with EU Agencies, other EU Institutions, notably with the European Parliament, and authorities in the Member States,

– increasing transparency when setting its research priorities by making the criteria for these priorities publicly available.

An integrated approach to the provision of S/T support to policies represents a key feature of this Specific Programme. Indeed, in various areas the need for understanding interactions between technological change, scientific developments, innovation and competitiveness and different regulatory and policy approaches (e.g. economic instruments, voluntary schemes and flexible mechanisms) is very acute. A strong research base will underpin such objectives. The participation in the direct actions of the Framework Programme will strive to maximise complementarity with the institutional programme outlined in section 3 below.

The JRC will strengthen its position in the European Research Area, by facilitating access to its facilities by European and non-European researchers, including early-stage scientists. It will increase its cooperation with other public and private research organisations, consistently improve the scientific quality of its own activities and contribute more scientifically to training, which will remain a high priority for the JRC.

Dissemination of knowledge among the various stakeholders involved in this process will represent a key feature of the approach and efforts should be made to increase the involvement of SMEs in research actions. Activities will also be aimed at the support to the implementation and monitoring of legislation and at the dissemination of best practises in the context of EU-25, Candidate and Neighbouring Countries.

The JRC will respond to the call for 'better regulation' of the new Lisbon agenda by underpinning ex-ante as well as ex-post policy assessment and appraisals, supporting the Commission evidence-based policy initiatives. Furthermore, requirements issued in the context of policy implementation and monitoring will lead to the setting up of fit-for-purpose support activities insofar as they are research based.

New challenges associated with the growing need to respond to crises, emergencies, and pressing political imperatives will be met by building up capacities and facilities in selected areas to provide adequate support in an EU context.

Community external and security-related policies will exercise new demands upon the JRC throughout the duration of the Seventh Framework Programme. These areas of work will be supported by in-house and secure information/analysis systems to respond at short notice. By the same token, the global and international dimension of the JRC's work will also develop further in the present programme.

A specific part of the JRC's resources is devoted to exploratory research, to develop new knowledge and new competencies. Resources are invested in exploratory research as "seed money" which might yield practical results at a later stage and, if successful, will contribute to the activities of the JRC in the medium to long term.

When requested in the context of its support for thematic policies, the JRC will engage into specific exercises leading to a better exploitation (including dissemination when feasible) of relevant EU-wide research results. In doing so it will enhance the benefits of knowledge society. Where and when appropriate, research conducted by the JRC should be coordinated with the research undertaken under the "Themes" of the "Cooperation" Specific Programme, in order to avoid overlap and duplication.

3. Activities

3.1. Policy Theme 1: Prosperity in a knowledge intensive society

3.1.1. Agenda 1.1 Competitiveness and Innovation

Fostering EU competitiveness, transparency of internal market and trade will be pursued by the production and dissemination of internationally accepted references and the promotion of a common European measurement system. Comparability of measurement results will be fostered through the provision of quality assurance tools like reference materials, reference measurements, validated methods and data in a broad range of policy related areas such as:

– safety of chemicals and products including cosmetics, through the development of a system of reference for integrated chemical risk assessment and by S/T support to the chemicals legislation including support (training) to the preparation of European Chemicals Agency (ECA),

– alternative (non-animal) testing approaches and intelligent testing strategies,

– food safety, quality and authenticity; feed safety; bio-technology,

– eEnergy (cleaner and renewable energy sources and carriers),

– security and protection of the citizen,

– environment and health.

This reference work will be pursued in close cooperation with Member State institutions, international standardisation bodies (ISO, CEN, Codex Alimentarius, AOAC), regulatory authorities and industry. The JRC maintain a role as Community Reference Laboratory (CRL) in the areas of genetically modified food and feed, food contact materials and feed additives and take up a role as CRL in further related fields of its competence.

The JRC will pursue the development of advanced econometric modelling and sensitivity analysis techniques in a wide range of policy fields, in macro-economic modelling, short term analysis of financial and business cycles and the development and assessment of composite indicators.

The JRC will also continue to apply the financial econometrics and statistics tools in the area of financial services (for instance, Clearing and Settlement and banking directives). It will remain involved in a variety of initiatives by providing support to ex ante and ex post assessments (including impact assessments) by developing specific indicators and carrying out analyses.

The JRC will increase its support to the development of Community policy on international trade, with particular emphasis on the impact of trade policy on sustainable development and competitiveness.

The Lisbon agenda for growth and jobs will be supported by direct quantitative socio-economic analysis – also in relation to the "better regulation" principle – in a number of policy areas like macro-economic stability and growth, financial services, aspects of competitiveness, lifelong learning and the human capital dimension of the Lisbon strategy, agriculture, climate change, sustainable energy and transport systems. The JRC will contribute to a better understanding of the relationship between education provision and the needs of the knowledge society, of circulation of knowledge, of factors affecting equity in education and how efficient use of educational resources can be achieved.

At the core of competitiveness and environment objectives are the eco-efficient technologies which will continue to be identified and assessed by the European Integrated Pollution Prevention and Control Bureau and by input to the implementation and monitoring of the Environmental Technology Action Plan. The conditions under which these technologies are developed will be studied, to identify the barriers to their dissemination, to assess performance targets and use and to analyse the measures to improve their uptake.

Support to competitiveness will also be provided through activities such as:

– support to the setting up and maintenance of European standards such as Eurocodes, Euronorms, IEC, ISO norms and European Reference Materials,

– developing standards for environmental and security monitoring systems and harmonised data access in the context of INSPIRE (Infrastructure for Spatial Information in Europe) and GMES (Global Monitoring for Environment and Security),

– strengthening the European Measurement Infrastructure by interlaboratory comparisons in support to accreditation/certification processes.

The JRC will also provide its scientific/technical support for the development of risk assessment and management procedures as a tool for European decision-making.

3.1.2. Agenda 1.2 European Research Area

The JRC will contribute directly to European Research Area by increasing its scientific networking, training and mobility of researchers, access to research infrastructures and collaborative research. It will participate in European Technology Platforms, Joint Technology Initiatives and Article 169 actions where relevant. Special attention will be paid to involving partners in the new Member States and Candidate Countries.

The JRC will provide support to evidence-based research policy-making at both Community and Member State levels.

This strategic support to research policy-making will be complemented by providing technology assessments of the research priorities in individual thematic areas.

The consolidation, development and dissemination of science and technology foresight methods will also be promoted at European level.

3.1.3. Agenda 1.3 Energy and Transport

The JRC will focus its energy activities on a smooth transition to less carbon intensive and renewable sources and carriers of energy (including hydrogen), increased efficiency of energy systems and improved safety and security of energy supply. The objectives of the JRC in the area of energy are:

– to provide a sustainable energy reference system feeding the Community policy needs with S/T expertise on technological innovation and evolution (all energy sources and end-use energy efficiency),

– to act as reference centre for pre-normative performance verification and certification of selected technologies (i.e. cleaner fossil, bio-mass, photovoltaic, fuel cell and hydrogen),

– to provide information on reliability of energy supply for Europe and on the availability of renewable energy resources. In addition, the JRC will facilitate a fact-based debate and informed decision-making on the appropriate energy mix to meet the European energy needs.

The JRC will contribute to the development of sustainable transport in Europe by focusing on:

– the environment with research on emission control and related impacts on ecosystems; the potential to reduce emissions by emerging technologies under different policy scenarios,

– the techno-economic dimension with research on the assessment of externalities, improved fuels and engines, alternative vehicles concepts and the impact of innovation on competitiveness and economic growth as well as to assessments of transport policy options,

– the social dimension, with activities including research in spatial, urban planning, impacts on health and awareness raising. Efforts will also be devoted to aspects of safety and security of air, land and maritime transport.

Energy and transport are the main sectors responsible for pollution affecting the air quality. The JRC will support the EU thematic strategy on air pollution (CAFE Clean Air for Europe) with particular attention on characterisation and apportioning of emissions from various sources in support to the development of emission abatement strategies. Harmonisation/Normalisation of reference tests and methodologies for measurement of emissions will be undertaken.

3.1.4. Agenda 1.4 Information Society

The JRC will support the formulation of Information Society Technology policies and instruments contributing to a competitive European knowledge society by generating prospective analyses and strategies related to the knowledge society. Growth, solidarity, inclusion and sustainability will be points of attention. The JRC will also contribute to the implementation of the Community policies closely linked with or strongly benefiting from Information Society Technology developments. This covers applications in e-business, e-health, personal security, home environment, e-learning, e-governance, and environment as well as the determination of the potential for new developments in the pursuit of the overall European strategies on growth, inclusion and quality of life and ICT for trust and confidence.

The JRC will work on "convergence" in the IST area with the aim of assessing potential impact on society in terms of competitiveness, privacy, ownership and social inclusion. Convergence applications will be pursued in the area of health (bio-sensors, nano-technology and cognitive sciences), security (sensors, public security and personal integrity) and environment (monitoring technologies and sustainable environmental management).

3.1.5. Agenda 1.5 Life Sciences and Bio-technology

Life sciences and bio-technology are pertinent to many policy areas where they can significantly contribute to the Community objectives. This potential is broadly recognised in health, agriculture, food, environment and other sectors where applications are being rapidly developed. The provision of reference materials and validated methods requires access to and control of a broad range of advanced bio-technological instruments. In the context of its collaboration with competent national organisations, the JRC will further develop its competencies in this area in view of the legislative and regulatory context.

In particular, the JRC will carry out studies on the socio-economic impact of selected applications of bio-technology and life sciences in support of future legislation. With an integrated effort in nano-bio-technology, physics, biology and chemistry applied to detection techniques the JRC will contribute to the development of new strategies and technologies for environment and health monitoring, (eco) toxicology studies, food and feed chain control and security.

Activities will be developed inter alia. in the following areas:

1) Bio-technology and health-related aspects:

   – provision of quality assurance tools for genetic testing,

– studies on genome-based diagnostic applications and drug development (e.g. pharmacogenomics),

– development and validation of advanced methods for refining, reducing and replacing animal tests for bio-technological pharmaceuticals, for predicting the toxicity of chemicals by in vitro cell cultures, high throughput techniques and toxicogenomics,

– identification and assessment of novel bio-informatic methodologies in support to "omics" approaches, integrating physiological responses modulated by individual susceptibility and life style factors,

– development of a methodological framework for properly considering risk modifiers in human health risk assessment,

– assessment of environmental and health impacts of nano-technologies including nano-toxicology.

2) Bio-technology in agriculture, food and feed:

– prospective studies on emerging bio-technological applications in food production (e.g. functional food, cloned farm animals and molecular "pharming" crops),

– GMO detection, identification and quantification (includes validation of high throughput screening methods, and quality assurance tools for GMOs of next generations),

– studies on the coexistence of GM/non-GM crops; studies on the economics of GM crops.

3.2. Policy Theme 2: Solidarity and the responsible management of resources

3.2.1. Agenda 2.1 Rural Development, Agriculture and Fisheries

The JRC will with its research support European policies for Rural Development, Agriculture and Fisheries covering all the three dimensions of sustainability:

– Production aspects: support to implementation, control and monitoring of the CAP (Single Payment Schemes, Cross compliance and Farm Advisory Systems), including Integrated Administration and Control Systems for arable lands and permanent crop registers, and implementation of rural/urban cadastre to support market and investment (using positioning/navigation techniques). Crop production forecast based on growth simulation models, area frame techniques, remote sensing and an agro-phenological network. Support to the implementation of an EU farmer insurance system. Support to the methodological aspects of the new EU agriculture statistical system (including LUCAS).

– Environmental aspects: Assessing implications of good agricultural and environmental conditions and studying impacts and effectiveness of agri-environmental measures on soil and water conditions, bio-diversity and European landscapes. Analysing links between agricultural, rural development and regional policies and their impacts on European land use changes through the development of indicators and spatial models. Evolution of promotion measures for low input and organic agriculture and soil fertility. Supporting the development of targeted territorial strategies for the implementation of rural development programmes. Assessing the impact of climate change on agriculture in view of adaptation measures. Contribution to mitigation of GHG (greenhouse gas) emissions by dedicated energy crops and by energy recovery from agri-wastes.

– Producer/consumer aspects: Strategic policy analyses in areas such as: impact of the CAP reform on the sustainability of farming systems; responsiveness of agriculture to consumer demands: food characterisation and control, impact of quality assurance (QA) and certification schemes managed within supply chains, and responsiveness to environmental and animal welfare standards; projection and policy impact analyses of main European agricultural commodities in terms of production, world market, prices, income and consumer welfare; impact of changes in trade policy and world commodity markets; agricultural policies in rural development in conjunction with other policies. Specific attention will be given to the impact of CAP Reform in the new Member States and Candidate Countries and the analysis of impacts/effects of rural development policies.

Common Fisheries Policy objectives will be addressed by improving the quality and timeliness of scientific data and by developing processes for the assessment of the economic and social impact of management options. New technologies, including fish origin identification based on DNA analysis, will be used to identify non-compliance. Attention will be paid to techniques which favour stakeholder involvement. In line with the Community's emerging maritime policy, the feasibility of services developed for fisheries – such as vessel monitoring by remote sensing and electronic reporting, will be extended to merchant vessel identification. The impact of a growing aquaculture sector, including in environmental, and socio-economic terms, will be assessed.

3.2.2. Agenda 2.2 Natural Resources

The JRC is participating in the work towards a holistic approach related to monitoring change and analysing impacts and pressures on natural resources aiming to develop integrated concepts for sustainable development. In complement to the Agenda 2.1, this research will be closely aligned to the EU's seven thematic environmental strategies. It will pay attention to the sharing of environmental information and feed the development of GMES by playing an important role in its research activities. Applications will conform to INSPIRE principles.

More specifically, activities will concentrate on:

– Water management in the context of the Water Framework Directive and Maritime Policy with attention to ecological quality of inland and coastal water of Europe, pollutant cycles, harmonised measurements of chemical and biological contaminants, dynamic modelling and pan-European information systems.

– Soil protection initiatives identified in the Soil Framework Directive, with focus on streamlining the flow of soil information in Europe, the definition of common criteria and methods for delineating risk areas of soil threats, and approaches for soil monitoring.

– Life-cycle analysis approaches to track resources from extraction through use, recycling and ultimate disposal of materials. Sustainable production and consumption of natural resources and materials, and the environmental impact and sustainability of products under different technology and policy scenarios.

– Forestry; a system for monitoring Community forests will be established with information on forest fires, forest ecological condition and forest resources. Activities will cover forest bio-diversity indicators, tools for the analysis of post-fire impacts, analysis of interactions of forest fires, soils and climate change, and the integration of information related to forests resources available from Member States.

– Provision of continuing technical support to the development of INSPIRE: contribution to the EU shared environment information system (in close cooperation with the European Environment Agency and ESTAT).

– Impact assessment of structural and cohesion programmes and support to the definition and evaluation of Community Regional Policies by mean of territorial indicators at regional and urban level.

3.2.3. Agenda 2.3 Environment and Health

The link between environment and health represent a new focus of attention at European level. The JRC will contribute to this emerging policy field by:

– the development and validation of methods for monitoring pathways and assessing exposure: ambient air (air quality), indoor air (products, smoke), drinking water and food (including contact materials, contaminants in food chain). A contribution to the development of total human exposure approach is foreseen notably in the area of chemicals,

– the assessment of health effects through experimental work, bio-monitoring, toxicogenomic analyses, computational techniques and analytical tools,

– exploiting knowledge derived from the two items above in order to contribute to the future development of an integrated environment and health system, in line with the policy framework on environment and health information being developed under the EU Action Plan.

3.2.4. Agenda 2.4 Climate Change

Reducing greenhouse gas emissions is a central objective of the Kyoto protocol. Assessing the potential for reducing GHG emissions (mitigation measures) in a common framework is therefore a key item in the JRC agenda. Quality assessment, verification and analysis of GHG emission data will be pursued, especially in difficult sectors such as agriculture and forestry. Similar work will address the issue of verification in the context of carbon trading.

Adaptation to climate change has become imperative and the JRC will continue to collect and assess data related to climate impacts on various vulnerable sectors of the European economy. This includes agriculture, forestry, water resources and natural risks. Assessing hazards related to climate change will focus on the incidence at European level of floods, droughts, forest fires, storms, deterioration of air quality and coastal and marine processes.

Adequate knowledge of the signals and impacts of climate change around the world is necessary. Global monitoring techniques will be further developed to assess changes in the atmosphere, oceans and terrestrial biosphere which either drive or result from climate change. This work forms part of the European contribution to the global observing systems formally endorsed by the UN Framework Convention on Climate Change (contribution to the Global Climate Observation System). Similar work will address the verification of carbon trading associated with the Kyoto Protocol's flexible mechanisms (Joint Implementation and Clean Development Mechanism) and future regimes beyond 2012. The JRC will engage in a 3rd phase of the TREES (Tropical Ecosystem Environment observations by Satellites) programme, to update the preceding assessments of global forest cover.

The JRC will collaborate with other modelling centres around Europe to develop trade-off scenarios and cost-benefit analyses. Of particular relevance for the Seventh Framework Programme is the analysis of options for the post-Kyoto period which will open discussions on integrating climate policies in other sectoral policies.

3.3. Policy Theme 3: Freedom, security and justice

3.3.1. Agenda 3.1 Internal Security

JRC will give S/T support to Community policies related to the establishment of the area of freedom, security and justice, and customs in particular through its research activities. The focus will be on applying IT and systems analysis competencies to the protection against crime and fraud, smuggling and illicit trafficking; the protection of citizens and critical infrastructures against terrorism; and migration and border management. Technical support to integrated border management (e.g. interoperability) will also be provided.

Activities will include support to:

– the capacity to detect and monitor fraud against the Community budget and diversion of funds through automatic intelligence gathering and advanced analytical techniques applied to large datasets,

– assessing threats and vulnerabilities of critical infrastructures in key sectors at the Union level (e.g. information systems, financial systems, industrial plants, public buildings, transport systems and infrastructures, communication networks, financial networks, navigation systems, electricity and gas/oil infrastructures, food distribution systems, etc),

– the prevention, preparedness and risk management of scenarios triggered by intentional acts (sabotage of industrial installations, blasts, impacts, biological and chemical agents, attacks to food systems) on infrastructures,

– border security and management through standards and testing for bio-metric sensors, monitoring systems to detect illicit trafficking, monitoring migration flows,

– information gathering in the field of transport of goods by air, sea, road, using various tracking technologies,

– the EU crisis room structure (ARGUS) and crisis response mechanisms.

3.3.2. Agenda 3.2 Disasters and Response

In the context of natural and technological disasters and accidents, the JRC will foster a better capacity to understand and deal with vulnerabilities, risks, early warning, alert systems, monitoring and damage assessment, prevention and mitigation measures. In particular it will contribute to the improvement of Community response capacity and crisis management in terms of rapid response, monitoring, damage assessments (e.g., in the context of the Civil Protection Mechanism and Solidarity fund intervention).

The Major Accidents Hazards Bureau will contribute to safety management through monitoring accidents and incidents and drawing lessons learned, specifically in Seveso II installations.

With respect to natural disasters, the JRC will focus on the development of early warning and alert systems drawing upon models, earth observation technologies, and measurement networks for a variety of situations across Europe including floods, droughts, oil spills, earthquakes, forest fires, avalanches, landslides and storms. Multi-hazard risks will be studied for the Mediterranean/Black Sea basin and the fringes of the Atlantic Ocean. Reporting on and drawing lessons from natural disasters will be continued. Work in this agenda will also be conducted in support to the development of GMES services related to crisis and emergencies.

3.3.3. Agenda 3.3 Food and Feed Safety and Quality

Activities will be in line with the Fork to Farm concept. The JRC will provide validation of methods and harmonised procedures for a broad range of food and feed types. It will also reinforce its ability to deal with food and feed crises by its expertise in food and feed analysis and by entering new areas where needed. Attention will be paid to a close cooperation with the European Food Safety Authority.

Specific domains of action will cover:

– validation of molecular biology and hyphenated techniques for food and feed control e.g. in the area of allergens, functional and organic food,

– areas related to food and health where future legislation is expected (e.g. micro-biology, functional and organic food, allergens, health claims in labelling),

– areas related to feed safety for existing legislation (e.g. feed additive authorisations),

– micro-biology for food and feed, validation of bio-molecular detection methods for micro-organisms, in particular for pathogens in food and water,

– validation of analytical methods for the detection of banned substances, of contaminants, feed additives and animal proteins, compliance with labelling Directives and for designation of origin (e.g. isotopic methods),

– electronic traceability along the feed-food chain.

3.4. Policy Theme 4: Europe as world partner

The JRC will support Community decision-making in the framework of external policy instruments (development cooperation, trade and instruments responding to crises and peaceful conflict prevention including the instruments for Stability and Humanitarian Aid).

3.4.1. Agenda 4.1 Global Security

The JRC will, through its research, enhance its support to Community reconstruction and humanitarian aid programmes through novel technologies (including space, geo-spatial analysis, web intelligence, real-time information systems) to serve several levels of intervention (from preparedness to rapid response and field operations) in order to address the identification of forgotten crises, early warning of potential crises, humanitarian needs assessment and relief, integrated crisis response and post-crisis damage assessment. Support for international humanitarian aid will also be provided through an extension of the functionalities of the Global Disaster Alert and Response System, to cover a broad range of humanitarian disasters in close cooperation with the UN Agencies (especially its Office for Coordination of Humanitarian Affairs).

The JRC will establish a global geo-spatial database and contribute to services (rapid mapping) in support of crisis management and security; inter-operability of systems and standards for supporting data exchange between systems, notably with Council SitCen and EU Satellite Centre. This activity is undertaken in the context of the development of future GMES pilot services.

The JRC will provide S/T support in relation to the implementation of measures in the context of the envisaged Instrument for Stability, addressing trans-border challenges and longer-term global stability and security issues. JRC will work on the issue of proliferation of WMD and dual use goods and technologies, including export control, border control, supply chain security, and country profiling. Systems to be further developed for that purpose include export control classification systems, intelligence based systems, data warehousing and multi-lingual web mining intelligence tools. Strong integration with the relevant JRC activities under the Euratom specific programme is foreseen.

Remote sensing analysis techniques and systems for integration and analysis of multiple source data (including earth observation and open source) are central to the approach; they will be used in support to the implementation of the Community's external policy activities such as those relevant for the Kimberley process and mechanisms for monitoring illegal trade including in timber and dual use items. These activities will contribute to the global dimension of the GMES initiative.

3.4.2. Agenda 4.2 Development Cooperation

An Observatory for Sustainable Development and Environment will initially be established in Africa, Caribbean and Pacific countries. Environmental diagnostics and country profiles, scenario building and cross policy interactions will be the three components served by the information gathering and communication system lying at the heart of the Observatory. The provision of long-term observation of resources and environmental parameters (e.g. on land cover, forest cover, fires, bio-diversity, coastal zones, climate vulnerability, etc.) will support trends analyses. The development will be carried out in close collaboration with the GMES initiative and the Africa Monitoring for Environment and Sustainable Development programme.

The global crop monitoring component of the observatory will be developed in the context of food security and the Community initiative on poverty eradication and sustainable development. Research work will focus on new methods for assessing food supply and needs, food security information systems and vulnerability assessments.

End products delivered will be "client driven", i.e. in this particular case be designed in a way that they respond to the needs and are manageable by Developing Countries.

Cooperation with major actors (UNEP, FAO, EUMETSAT, WFP, ESA GMES-GMFS) will be reinforced.

Ethical aspects

During the implementation of this specific programme and in the research activities arising from it, fundamental ethical principles are to be respected. These include, inter alia, the principles reflected in the Charter of Fundamental Rights of the EU, including the following: protection of human dignity and human life, protection of personal data and privacy, as well as animals and the environment in accordance with Community law and the latest versions of relevant international conventions and codes of conduct, e.g. the Helsinki Declaration, the Convention of the Council of Europe on Human Rights and Bio-medicine signed in Oviedo on 4 April 1997 and its Additional Protocols, the UN Convention on the Rights of the Child, the Universal Declaration on the human genome and human rights adopted by UNESCO, UN Biological and Toxin Weapons Convention (BTWC), International Treaty on Plant Genetic Resources for Food and Agriculture, and the relevant World Health Organisation (WHO) resolutions.

Account will also be taken of the Opinions of the European Group of Advisers on the Ethical Implications of Bio-technology (1991-1997) and the Opinions of the European Group on Ethics in Science and New Technologies (as from 1998).

In compliance with the principle of subsidiarity and the diversity of approaches existing in Europe, participants in research projects must conform to current legislation, regulations and ethical rules in the countries where the research will be carried out. In any case, national provisions apply and no research forbidden in any given Member State or other country will be supported by Community funding to be carried out in that Member State or country.

Where appropriate, those carrying out research projects must seek the approval of the relevant national or local ethics committees prior to the start of the RTD activities. An ethical review will also be implemented systematically by the Commission for proposals dealing with ethically sensitive issues or where ethical aspects have not been adequately addressed. In specific cases an ethical review may take place during the implementation of a project.

The Protocol on protection and welfare of animals annexed to the Treaty requires the Community to pay full regard to the welfare requirements of animals in formulating and implementing Community policies including research. Council Directive 86/609/EEC of 24 November 1986 on the approximation of laws, regulations and administrative provisions of the Member States regarding the protection of animals used for experimental and other scientific purposes[1] requires that all experiments be designed to avoid distress and unnecessary pain and suffering to the experimental animals; use the minimum number of animals; involve animals with the lowest degree of neurophysiological sensitivity; and cause the least pain, suffering, distress or lasting harm. Altering the genetic heritage of animals and cloning of animals may be considered only if the aims are ethically justified and the conditions are such that the animals' welfare is guaranteed and the principles of bio-diversity are respected.

During the implementation of this programme, scientific advances and national and international provisions will be regularly monitored by the Commission so as to take account of any developments.

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[1] OJ L 358, 18.12.1986, p. 1. Directive as amended by Directive 2003/65/EC of the European Parliament and of the Council (OJ L 230, 16.9.2003, p. 32).