

DRAFT

WORK PROGRAMME 2008

COOPERATION

THEME 2

FOOD, AGRICULTURE AND FISHERIES, AND BIOTECHNOLOGY

CONFIDENTIAL

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Theme 2: Food, Agriculture and Fisheries, and Biotechnology

Objective:

Building a European *Knowledge-Based Bio-Economy*¹ by bringing together science, industry and other stakeholders, to exploit new and emerging research opportunities that address social, environmental and economic challenges: the growing demand for safer, healthier, higher quality food and for sustainable use and production of renewable bio-resources; the increasing risk of epizootic and zoonotic diseases and food related disorders; threats to the sustainability and security of agricultural, aquaculture and fisheries production; and the increasing demand for high quality food, taking into account animal welfare and rural and coastal contexts and response to specific dietary needs of consumers.

I CONTEXT

I.1 Policy context

Renewable biological resources are the basis of a European knowledge based bio-economy (food, feed, agriculture, forest based, fisheries, aquaculture, biochemistry, etc.) that today has an estimated annual turn-over of more than €1500 million. The increasing demand for biological resources, both in quantity and quality, can only be met through innovation and advancement of knowledge in the sustainable management, production and use of these biological resources (micro-organism, plants and animals)². This programme brings together all relevant actors (appropriate research disciplines and industrial sectors, farmers, forest owners, consumers, etc.) to develop the basis for new, sustainable, safer, affordable, eco-efficient³ and competitive products. In line with the European strategy on life sciences and biotechnology⁴ and the Lisbon objectives, this will help increase the competitiveness of European agriculture and biotechnology, seed and food companies, in particular high tech SMEs, while improving social welfare and well-being and reducing environmental footprints.

The research will also provide the knowledge base needed to support the Common Agricultural Policy; the EU Forest Strategy and the Forestry Action Plan; agriculture and trade issues; the Community Animal Health Policy; safety aspects of GMOs; the Development Policy and the Common Fisheries Policy reform aiming to provide sustainable development of fishing and aquaculture.

Research into the safety of food and feed chains, diet-related diseases, food choices and the impact of food and nutrition on health will help to fight diet-related disorders (e.g. obesity, allergies) and infectious diseases (e.g. transmissible spongiform encephalopathies, avian-flu, bluetongue), while making important contributions to the implementation of existing, and the formulation of future, policies and regulations in the area of public, animal and plant health and consumer protection.

¹ The term "bio-economy" includes all industries and economic sectors that produce, manage and otherwise exploit biological resources (and related services, supply or consumer industries), such as agriculture, food, fisheries and other marine resources, forestry, etc.

² For clarity, resources are considered broadly: Animals include fish; plants include trees; food includes seafood, etc.

³ Eco-efficient products are less polluting and less resource-intensive in production, and allow a more effective management of biological resources.

⁴ http://ec.europa.eu/comm/biotechnology/introduction_en.html

Research into non-food applications of biological resources will support objectives of the Environmental Technology Action Plan (ETAP)⁵, as well as the biomass action plan⁶ and the European biofuels strategy⁷.

I.2 Approach

This work programme describes the research topics for the call for proposals launched in November 2007 (the "2008 call"). It provides, for each topic, a description of the technical content and scope of the research, any specific participation requirements (if appropriate) and the related expected impact.

All four activities and all areas within these activities are open in the 2008 call. In view of the wider scope of this Theme as compared to thematic priority 5 "Food quality and safety" of the sixth Framework Programme (FP6) and the more limited financial resources available in the first few years of the seventh Framework Programme (FP7), the focus is on topics that a) cover new areas, as compared to FP6 and the 2007 work programme of FP7, or b) are a necessary continuation or follow-up of previously funded European projects⁸, and/or c) are of high priority and European added value in terms of recent policy developments.

Call 2B will exclusively focus on (i) small collaborative projects, (small or medium-scale focused research actions) where needs in terms of competitiveness or policy support are more tangible and targeted and where clear impacts can be achieved through shorter term projects, and (ii) on small preparatory actions (Coordination & Support Actions – CSA), which will, *inter alia*, identify and lay the ground for priority actions in later calls. All proposals will be evaluated under the one-stage procedure.

Small collaborative projects (“small or medium-scale focused research actions”) are projects with a requested Commission contribution up to €3 million⁹ and Coordination and Support Actions (CSA) up to €1 million, unless stated otherwise for a given topic.

It is important to note that these funding thresholds will be applied as eligibility criteria and that the proposals not fulfilling these thresholds are considered as ineligible.

The forms of the grants to be used for the funding schemes under this work programme are given in Annex 3. Further information on funding schemes can be found in the relevant “Guide for applicants” published for this call.

For all calls of this work programme, in general only one project will be retained per topic, unless indicated otherwise. However, there will be competition between topics, and some proposals may fail to be of a sufficient standard to be funded so that some topics may not be supported.

The content of the research topics selected for the 2008 call is based on the input received from the Advisory Group and the Programme Committee of this Theme, the Standing Committee for Agricultural Research (SCAR) & the Advisory Committee for Fisheries and Aquaculture (ACFA), on external inputs from the research community and interested organisations¹⁰, expert workshops, outputs from conferences, studies, analysis of ongoing research, policy needs, etc. The strategic

⁵ <http://ec.europa.eu/comm/environment/etap/>

⁶ http://ec.europa.eu/energy/res/biomass_action_plan/index_en.htm

⁷ http://ec.europa.eu/agriculture/biomass/biofuel/index_en.htm

⁸ <http://cordis.europa.eu/food/home.html>

⁹ In general, projects supporting policy through a study-type approach will be significantly less than this – applicants should ensure that the budget is appropriate to the work carried out.

¹⁰ Amongst others the European Food Safety Authority, the International Council for the Exploration of the Sea – ICES, the European Fisheries & Aquaculture Research Organisations – EFARO.

research agendas (SRA) of the European Technology Platforms¹¹ relevant to Theme 2 have been taken into account in defining the priorities for this work programme.

A significant part of this Theme provides research in support to policy, the topics of which have been identified in cooperation with the relevant policy directorates of the Commission, and in response to recent policy developments.

Coordination of national research programmes in the current work programme will be limited to support new activities in strategically important areas. Potential funding for the continuation or widening of current ERA-NET activities (ERA-NET plus) will be addressed in later work programmes, and following a thorough analysis of the on-going projects and experiences with joint calls.

In preparing proposals, applicants should consider the horizontal issues addressed in the general introduction and the following aspects, which are of particular relevance to Theme 2:

- ***SME relevant research***

The work programme of this Theme is designed to attract industrial participants, in particular SMEs. These might be: end-users of new technologies (such as breeding companies, SMEs or agricultural cooperatives involved in the production, packaging or control of foods or feeds, etc); technology providers (mainly engineering companies) or technology-based biotechnology companies (agricultural or industrial biotechnology). It is expected that SMEs are involved in all relevant research projects that aim to support the competitiveness of European industries, in particular those dealing with the concrete industrial application of new technologies or research results, or the development of industrially relevant technologies.

- ***International Cooperation***

International cooperation with participants from third countries is supported and encouraged throughout all areas of this Theme, and all topics are open to cooperation with third countries. In addition, a series of “Specific International Co-operation Actions” (SICA) will be dedicated to international co-operation with partners from International Cooperation Partner Countries (ICPC) – see Annex 1 – to jointly address, on the basis of mutual benefit, problems of shared interest, or that third countries face or that have a global character. Firstly, co-operation with ICPC will be supported, taking into account their needs with a view to contribute to the UN Millennium Development Goals of eradicating extreme poverty and hunger and to ensure environmental sustainability. Secondly, Specific International Co-operation Actions on commonly agreed priorities will be undertaken with major partner regions and countries - particularly those involved in bi-regional dialogues and bilateral S&T agreements as well as European neighbourhood countries and emerging economies. Thirdly, multilateral co-operation actions involving broad international consortia of industrialised, emerging and developing countries world-wide will be carried out to address either challenges requiring broad international efforts (such as the dimension and complexity of systems biology in plants and micro-organisms) or to address global challenges and EU international commitments (e.g. international standards for food quality and safety and drinking water, global spread of animal diseases, equitable use of biodiversity). The priorities for actions have been identified in close cooperation with stakeholders from these regions and countries (Mediterranean, Russia, Balkan, etc.) through specific workshops. The SICA will ensure continuity with the international scientific cooperation activities from previous framework

¹¹ Plants for the Future; Sustainable Farm Animal Breeding and Reproduction; Global Animal Health; Food for Life; Forest-based Sector; Biofuels; the Industrial Biotechnology section of the Sustainable Chemistry Platform

programmes. SICA will build upon the progress and achievements of the past, fostering synergies with the different activities across the Theme.

In order to help international partners identify relevant topics, a list of all SICA topics and those relevant to international cooperation covered by this 2008 work programme is provided at the end of this introduction.

Co-ordination with other Calls from Third Countries

With a view to promoting international co-operation with third countries that are signatories of S&T bilateral agreements with the EC, initiatives towards clustering of projects selected respectively under this FP7 theme and under related research programmes from those third countries will be encouraged, on the basis of principles of mutual benefit and reciprocity. Particularly, clustering with Canadian projects from the Agriculture Bioproducts Innovation Programme (ABIP) of Agriculture and Agri-food Canada (http://www.agr.gc.ca/sci/abip-piba/pdf/abip-piba_guide_e.pdf) will be supported under this Call. The EC reserves the right of asking the co-ordinators of selected projects, during contract negotiations, to dedicate a limited amount of the allocated EC contribution for such clustering. This amount should be up to approximately 1% of the total EC contribution to the FP project; parallel funds will be allocated by the ABIP programme to the Canadian counterparts for twinning with the FP projects.

• ***Cross-thematic approaches***

Because bio-, nano- and information technologies have an interdisciplinary character, they contribute to different industrial sectors and policy objectives. Synergy and complementarity are apparent amongst the activities described in this work programme under its various Themes when technologies, industrial sectors or policies covered by one Theme build on technologies or contribute to industrial or policy objectives of another Theme (such as health, environment, energy, transport).

This Theme engages in research activities that contribute to the wider objectives of, or are complementary to research in, other Themes of the Cooperation programme. The development of this work programme has taken place in close consultation and interaction between the Themes to ensure synergy and complementarity. This applies, *inter alia*, to research in the areas of:

1. Systems biology/bioinformatics – relevant to Theme 1 "Health" and Theme 3 "ICT".
2. Factors impacting health – relevant to Theme 1 "Health".
3. Biodiversity and its sustainable exploration for the production of biological resources – relevant to Theme 6 "Environment", which deals with the conservation of biodiversity and natural resources.
4. Novel biotechnology approaches and improved biotechnologies for the production of bioenergy/biofuels - relevant to biofuels/bioenergy activities under Theme 5 "Energy" and Theme 6 "Transport".
5. Novel biotechnology approaches and improved biotechnologies for the production of renewable biomaterials – relevant to biomaterials research under Theme 4 "Nanosciences, Nanotechnologies, Materials and new Production Technologies".
6. Actions that focus on risk perception and communication, understanding of consumer behaviour and on wider stakeholder dialogue, including civil society organisations – relevant to "Science and Society" aspects.

In addition, research and technology development relevant to this Theme may be carried out under other Themes, in particular those of Theme 1 (basic biological processes, system biology, bioinformatics, biotechnological tools and processes, etc.), Theme 3 (development and/or application of ICT tools relevant to this Theme), Theme 4 (development and/or applications of nanotechnologies and nano-materials relevant to this Theme, i.e. in the area of food packaging) and Theme 10 "space" (space based observation and monitoring systems).

Finally, other specific programmes ("Ideas", "People" and "Capacities") may also have application to the areas and topics within this Theme, such as frontier research supported through the European Research Council.

Potential applicants should therefore consult other work programmes to identify opportunities that best cover their research interests and areas of expertise.

- ***Dissemination actions***

The dissemination and transfer of knowledge is a key added value of European research actions, and consortia should propose appropriate measures to increase the use of results by industry, policy makers and society.

Strengthening the competitiveness of the European food, agriculture, fisheries and biotechnology sectors is an important objective of this priority Theme, with particular attention being given to innovation aspects and broad participation of SMEs. Innovation-related aspects need to be clearly addressed and well-defined dissemination and exploitation plans presented, showing the optimal use of project results.

Dissemination will be considered an integral task of each project and consortia are encouraged to involve all relevant stakeholders (for example consumer and patient organisations, farmers, cooperatives, animal welfare organisations, ethicists, lawyers) in research projects from the very beginning of a proposal and actively engage in public dialogue. It will provide at the European level a bottom-up approach to help the process of consensus-forming around the development and use of new scientific and technological developments.

Within this work programme, a number of topics specifically address knowledge transfer and dissemination activities and activities aimed at engagement of the public.

- ***Integration of ethical, social, economic and wider cultural aspects.***

Experts in ethics, law, economy and social sciences are encouraged to participate actively in research projects. This trans-disciplinary collaboration should ensure that due account is taken of the ethical and societal concerns, our obligations towards future generations and the rest of the world as well as the potential economic impact at the earliest possible stage of new developments arising from the research. This may include the integration of foresight activities from previous FPs.

- ***Participation of women and gender aspects in research***

The pursuit of scientific knowledge and its use in service to society requires the talent, perspectives and insight that can only be assured by increasing diversity in science and the technological workforce. Therefore, an equal representation of women and men at all levels in research projects is encouraged.

Gender aspects in research have a particular relevance to this Theme as risk factors, biological mechanisms, behaviour, causes, consequences, management and communication of diet related disease and disorders may differ in men and women. Furthermore, roles and responsibilities, the relationship to the resource base (land management, agricultural and forest resources etc) and the perception of risk and benefits may have a gender dimension. Applicants should systematically address whether, and in what sense, sex and gender are relevant in the objectives and in the methodology of projects.

I.3 Other activities

- **National Contacts Points (NCP) for the Theme 2 "Food, Agriculture and Fisheries, and Biotechnology"**

A Network of National Contact Points (NCPs) and National Information Points (NIPs) in third countries is instrumental for helping access to FP7 calls, and to lower the entry barrier for newcomers and raise the average quality of submitted proposals. A topic for supporting a trans-national NIP network, in addition to the existing NCP network, through a coordination and support action is included in the 2008 call.

- **Risk-Sharing Finance Facility (RSFF)**

In addition to direct financial support to participants in RTD actions, the Community will improve their access to private sector finance by contributing financially to the 'Risk-Sharing Finance Facility' (RSFF) established by the European Investment Bank (EIB).

The Community contribution to RSFF will be used, by the Bank, in accordance with eligibility criteria set out in the Work Programme 'Co-operation' (horizontal issues). RSFF support is not conditional on promoters securing grants resulting from calls for proposals described herein, although the combination of grants and RSFF-supported financing from EIB is possible.

In accordance with the Specific Programme 'Cooperation' which stipulates that the Community contribution to RSFF will be funded by *proportional contributions of all Themes, except Socio-economic Sciences and the Humanities*, the Commitment Appropriations for this Theme to RSFF in 2008 will be EUR ??? million. This amount will be committed entirely in 2008.

The use of the Community Contribution from the Specific Programme 'Cooperation' will be on a 'first come, first served' basis and will not be constrained by the proportional contribution of Themes.

Further information on the RSFF is given in Annex 4 of this work programme.

- **Monitoring, Evaluation and Impact Assessment**

The Theme "Food, Agriculture and Fisheries, and Biotechnology" will comply with the prevailing requirements for monitoring, evaluation, and impact assessment. This may involve studies and surveys (implemented through public procurement) as well as appointing experts or groups of experts. It will include the ex-post impact assessment of relevant activities under the 6th Framework Programme and studies of the longer term impact of Community funding of research in related areas/disciplines/sectors, including from previous Framework Programmes.

List of Specific International Cooperation Actions and those relevant to international cooperation

1) Specific International Co-operation Actions (SICA)

<i>Topic number</i>	<i>Full Title</i>	<i>Funding Scheme</i>	<i>Third Countries (mentioned / encouraged)</i>
KBBE-2008-1-2-05	<i>Improved agro-forestry systems for sustainable farming</i>	SCP - SICA	3 ICPC (with a special focus on the poorest countries) MDG
KBBE-2008-1-3-02	<i>Foot-and-Mouth disease: improve and/or develop vaccine, vaccination strategies and diagnostics assays for free and endemic settings</i>	SCP- SICA	2 ICPC including India
KBBE-2008-1-4-08	<i>Characterisation and valorisation of Andean microbial diversity of support sustainable crop production and agro-ecosystems</i>	SCP - SICA	2 ICPC Latin America (Andean Region)
KBBE-2008-2-2-02	<i>Bioactive compounds in traditional food products</i>	SCP - SICA	2 ICPC from Black Sea
KBBE-2008-2-2-03	<i>Obesity prevention in the Mediterranean Area</i>	SCP - SICA	2 ICPC from Mediterranean
KBBE-2008-3-1-02	<i>Sweet Sorghum – An alternative energy crop for biofuel production in semi-arid and temperate regions</i>	SCP - SICA	2 Latin America, 1 India, 1 South Africa
KBBE-2008-3-1-04	<i>Plants produced Vaccines</i>	SCP - SICA	2 Russia
KBBE-2008-3-2-01	<i>Molecular modelling for rational design of industrial enzymes</i>	SCP - SICA	2 Russia
KBBE-2008-3-3-01	<i>Upgrading of wood, wood-related residues and humic-origin substances to added-value chemicals and materials: from biological understanding to innovative application</i>	SCP - SICA	2 Russia
KBBE-2008-4-1	<i>Network of Third Countries National Information Points</i>	CSA - SICA	ICPC and countries with EU bilateral agreements/arrangements

2) Other topics with an important international co-operation dimension

<i>Topic number</i>	<i>Full Title</i>	<i>Funding Scheme</i>	<i>Third Countries (mentioned / encouraged)</i>

KBBE-2008-1-2-02	<i>New and converging technologies for Precision Livestock Farming in European animal production systems</i>	SCP	ICPC
KBBE-2008-1-4-02	<i>Deep sea fisheries management</i>	SCP	ICPC
KBBE-2008-1-4-04	<i>Macroeconomic analysis of competitiveness, including non-tariff barriers</i>	SCP	<i>Third countries (e.g. AR, AU, BR, CA, CN, IN, US, RU, NZ, JP)</i>
KBBE-2008-3-1-01	<i>Plant Natural products</i>	SCP	US
KBBE-2008-3-2-06	<i>Life cycle analysis and socioeconomic assessment of integrated biorefineries</i>	CSA	US, Canada and South Africa
KBBE-2008-3-3-02	<i>Industrially relevant products and processes from marine biotechnology</i>	SCP	US

I CONTENT OF CALLS

Activity 2.1: Sustainable production and management of biological resources from land, forest and aquatic environment

Area 2.1.1 Enabling research

Enabling research on the key long term drivers of sustainable production and management of biological resources (micro-organisms, plants and animals) including the exploitation of biodiversity and of novel bioactive molecules within these biological systems. Research will include 'omics' technologies, such as genomics, proteomics, metabolomics, and converging technologies, and their integration within systems biology approaches, as well as the development of basic tools and technologies, including bioinformatics and relevant databases, and methodologies for identifying varieties within species groups.

KBBE-2008-1-1-01: Development of new tools and processes based upon genomic resources to support R&D in crop plants for breeding **Call: FP7-KBBE-2007-2B**

The project will develop new tools from technologies that support both research & development and the production of industrial prototypes for the breeding of crop plants (excluding forest and fruit tree species) using innovative gene technology breeding methods (transgenics/cisgenics/intragenics). Proposals should pre-select and justify the choice of technologies to develop.

Funding scheme: Small collaborative project.

Expected impact: This project is expected to complement the previous call on molecular breeding tools and to contribute to strengthen the EU's position in the plant breeding sector.

KBBE-2008-1-1-02: Regulation of environmental responses and developmental processes by epigenetics in crop plants **Call: FP7-KBBE-2007-2B**

This project will combine biochemical, physiological, bioinformatics and genetic research to define epigenetic target loci that are responsive to environmental signals. It will be based on the use of epigenetic mutants in a model system, on comparative genomics studies and on the assessment of epigenetic states and agronomic performance of crop plants. This project will build on the existing expertise among Europe's plant epigenetics research community to assess the impact of environmental conditions on epigenetic states and their influence on crop performance, sustainability and food quality. The project will be a multi-disciplinary approach focusing on knowledge transfer from basic research to the applied research sector.

Funding scheme: Small collaborative project.

Expected impact: The project will enable the European plant scientific community to progress in understanding important molecular mechanisms underlying epigenetic phenomena. The knowledge generated by this collaboration is expected to be translated into improved plant production in adverse environmental conditions and higher stability of yield for Europe's producers and consumers.

Area 2.1.2 Increased sustainability of all production systems (agriculture, forestry, fisheries and aquaculture); plant health and crop protection

Increased sustainability and competitiveness, while safeguarding consumer health, decreasing environmental impacts and taking account of climate change, in agriculture, horticulture, forestry, fisheries and aquaculture through the development of new technologies, equipment, monitoring systems, novel plants and production systems, crop management through selected plant breeding, plant health and optimised production systems, the improvement of the scientific and technical basis of fisheries management, and a better understanding of the interaction between different systems (agriculture and forestry; fisheries and aquaculture) across a whole ecosystem approach. Research into maintenance of autochthonous ecosystems, development of biocontrol agents, and microbiological dimension of biodiversity and metagenomics will be undertaken.

For land based biological resources, special emphasis will be placed on low input (e.g. pesticides and fertilisers), and organic production systems, improved management of resources and novel food and feeds, and novel plants (crops and trees) with respect to their composition, resistance to stress, ecological effect, nutrient and water use efficiency, and architecture. This will be supported through research into biosafety, co-existence and traceability of novel plants systems and products, and monitoring and assessment of impact of genetically modified crops on the environment and human health as well as the possibility of their broader benefit for society. Plant health and crop protection will be improved through better understanding of ecology, biology of pests, diseases, weeds and other threats of phytosanitary relevance and support to controlling disease outbreaks and enhancing sustainable pest and weed management tools and techniques. Improved methods will be developed for monitoring, preservation and enhancement of soil fertility.

For biological resources from aquatic environments, emphasis will be placed on essential biological functions, safe and environmentally friendly production systems and feeds of cultured species and on fisheries biology, dynamics of mixed fisheries, interactions between fisheries activities and the marine ecosystem and on fleet-based, regional and multi-annual management systems.

KBBE-2008-1-2-01: Development of appropriate indicators of the relationship between organic/low-input farming and biodiversity

Call: FP7-KBBE-2007-2B

National studies have shown that organic and other low-input production systems provide for increased genetic and biotic diversity of agricultural ecosystems. However, various sets of

indicators have been used as there is a lack of widely accepted indicators for biodiversity. Without appropriate indicators a valuable impact assessment of different farming management practices on biodiversity would be impossible.

This project is expected to provide and test adequate indicators for qualitative and quantified linkage between organic/low-input farming systems and conservation and sustainable use of genetic resources and other components of biodiversity. The project will have first to define criteria and guidelines for developing indicators to assess and monitor actual and potential impacts of existing and new agricultural practices on biodiversity in organic and low-input production systems. A representative number of case-studies will be developed to test a selected set of indicators in different regions and ecosystems of the EU. The studies will consider the use of indicators both on farm and its immediate vicinity.

Moreover, a study of the adaptability of those indicators in agro-ecological situations of ICPC, particularly developing countries, is encouraged.

Funding scheme: Small collaborative project.

Expected impact: The development of a scientifically-based set of indicators for linkage between organic/low-input agricultural systems and biodiversity and nature conservation will allow a comparative analysis of the impact of agricultural management practices on biodiversity and help to produce recommendations to maintain biodiversity and the associated economic benefits.

KBBE-2008-1-2-02: New and converging technologies for Precision Livestock Farming in European animal production systems **Call: FP7-KBBE-2007-2B**

The purpose of this project is to develop the potential role and key target technologies in precision livestock farming (PLF) of relevance to European models of agriculture and European society. PLF could potentially produce new methods exploiting, especially, information and communication technologies, for monitoring animal health and welfare and securing human health through electronic traceability processes, such as RFID. However, PLF also has societal and welfare issues related to intensification of farming systems. ICPC participation is recommended.

Funding scheme: Coordination and support action aiming at coordinating research activities.

Expected impact: The project will initially define a sound basis for future developments in PLF in Europe. Further work will potentially define specific technologies relevant to the European situation.

KBBE-2008-1-2-03: Assessment and mitigation of the impact of aquaculture on wild populations **Call: FP7-KBBE-2007-2B**

The objective of this project is to develop methods to assess the impact of aquaculture on wild populations and for the development of mitigation strategies. The impact of aquaculture activities on wild populations is an issue that has raised much concern among the general public. The main perceived risks are often associated with detrimental impacts on wild populations and the ecosystem through ecological interactions, pathogens exchange and interbreeding, posing a threat to the biodiversity. The improvement of aquaculture technology and husbandry practices can reduce the rate of escapees and the potential for transmission of diseases.

Funding scheme: Small collaborative project.

Expected impact: Promote the coexistence of natural and culture populations without losing biodiversity and exchange of diseases in order to ensure further development of aquaculture. Implementation of the aquaculture strategy, environment conservation, biodiversity.

KBBE-2008-1-2-04: Microbial control for more sustainable aquaculture

Call: FP7-KBBE-2007-2B

In the aquatic environment production is characterized by the phenomenon that feed and excretion products are present in the same matrix, namely water. Hence this environment is conducive to the proliferation of micro-organisms (beneficial, neutral and pathogens). In the past main attention has focused on pathogenic bacteria and their role in disease onset. There was little interest in the possible beneficial role of micro-organisms influencing the host at different stages in the development and life history: e.g. role of micro organisms in digestion, in non-specific and specific immune enhancement, in stress, in pathogenicity, in disease prevention, in macro and micro nutrient delivery.

The project will gain fundamental insights into processes in which micro-organisms play a key role. It is expected that microbial control could help to overcome bottlenecks in the life cycle of target species (enhanced survival, reduced stress, better growth) and to contribute to nutrient recycling, for instance through the production of cellular proteins making use of N-loaded aquaculture waste water.

Funding scheme: Small collaborative project.

Expected impact: A successful project will contribute to a better knowledge in processes in which micro-organisms play a major (positive) role in aquaculture, alleviating the impact of aquaculture on the environment and disease prevention.

KBBE-2008-1-2-05: Improved agro-forestry systems for sustainable farming – SICA

Call: FP7-KBBE-2007-2B

The main aim of the project will be the development and field-testing of agroforestry systems (AFS) best adapted to different agro-ecozones subject to erratic rains and drought. The project will improve the existing AFS and technologies and will introduce new ones more suitable to specific farmers and local societal needs. A preliminary phase might be necessary to study and analyse the main factors and hurdles that limit/hinder the adoption of agroforestry in the target areas, including socio-cultural aspects.

Specific objectives are: 1) identification, analysis and characterization of main factors influencing the adoption/non adoption of agroforestry in selected target areas, 2) performance improvement of identified multipurpose agroforestry tree species utilised in dry and marginal areas, 3) identification and domestication of new multipurpose tree species suitable for agroforestry in dry and marginal areas, 4) enhancement of synergies between the multifunction components of agroforestry - soil, trees, crops and livestock, 5) monitoring and evaluation of medium and long-term environmental impact of agroforestry and its socio-economic implications, 6) production of policy recommendations aimed at promoting AFS and related husbandry practices best adapted to specific local needs.

Funding scheme: Small collaborative project.

Additional information: SICA - Minimum number of participants: 3 from different member States or associated countries and 3 from different ICPC among which minimum 2 from Africa

Expected impact: The project will assess and analyse the reasons behind success and failure of AF, and will develop and test new AFS and strategies for optimal land management and soil conservation in dry areas subject to land degradation, loss of fertility and soil erosion, and will increase the production potential of farmers in dry and marginal areas.

KBBE-2008-1-2-06: Forecasting forest diversity under the influence of climatic changes and the consequences for stability and productivity of forest ecosystems

Call: FP7-KBBE-2007-2B

Biological diversity and other components, such as soil water, animal, fungi and prokaryotic organisms are crucial in maintaining and improving the stability and primary production of forest

ecosystems. Global warming and its influence on regional or local climatic conditions may affect the growth of forest stands directly or indirectly (through different trophic levels) and cause abnormal mortality or decline of tree species and other organisms less adapted to dynamic changes occurring in the natural environment. The impact of environmental factors on possible migration of organisms (including plant pathogens and insect pests) and their possible consequences for the health status of forests in Europe should be assessed in relation to historical knowledge of species changes and migrations. Forecasting dynamics of forest biodiversity in relation to global climate change (with special regard to changes in the proportions of forest tree species) will be targeted at forest policy makers to increase decision making capabilities based on multidimensional factors, and to facilitate collaboration and cooperation between and within countries.

Funding scheme: Small collaborative project.

Expected impact: Decision-support tool to evaluate changes in European forest biodiversity under the influence of global change. Guidelines for forestry and environmental managers and decision makers on the impact of climate changes on overall biodiversity in European forest ecosystems.

KBBE-2008-1-2-07: Forest energy – Short rotation forestry as a sustainable and eco-efficient land use management system for fossil fuels substitution within CDM-projects

Call: FP7-KBBE-2007-2B

Substitution of fossil fuels by renewable energy is an eligible measure for Joint Implementation (JI) or Clean Development Mechanism (CDM) projects of EU-countries within the frame of the Kyoto protocol. Thus, renewable energy projects can serve to fulfil CO₂-reduction targets of the EU and also to develop and apply new technologies of SMEs in the utilization of wooden biomass.

Compared to other annual biomass production systems, short rotation forestry (10-15 years) can be assumed as an extensive and most eco-efficient land use. In contrast to annual crops the production of dendromass can contribute to different international conventions and commitments simultaneously (soil erosion, biodiversity, climate protection and desertification). To optimize short rotation forestry as an ecological and socio-economical sound land use, the different utilization techniques for the energetic use of dendromass have to be assessed and the framework of JI- and CDM-projects has to be communicated to stakeholders as well as financing models for SMEs. To minimize land consumption, different land-use-management systems for biomass production have to be compared and optimized. This needs an interdisciplinary approach of agricultural and forestry institutions of industrialized and developing countries. To avoid leakage and guarantee ecological and socio-economic sound land use management systems international standards for the production of biomass have to be developed. Participation of ICPC countries is recommended.

Funding scheme: Coordination and support action aiming at coordinating research activities.

Expected impact: EU guidelines for farmers, SMEs and policy makers for optimized dendromass production within JI- and CDM-project.

Area 2.1.3 Optimised animal health, production and welfare across agriculture, fisheries and aquaculture

Optimised animal health, production and welfare, across agriculture, fisheries and aquaculture, inter alia through the exploitation of genetic knowledge, new breeding methods, improved understanding of animal physiology and behaviour and the better understanding and control of pests, parasites and infectious animal diseases and other threats to the sustainability and security of food production, including zoonoses. The latter will also be addressed by developing tools for monitoring, prevention and control, by underpinning and applied research on vaccines and

diagnostics, studying the ecology of known or emerging infectious agents and other threats, including malicious acts, and impacts of different farming systems and climate. New knowledge for the safe disposal of animal waste and improved management of by-products will also be developed.

KBBE-2008-1-3-01: Improving production animal health and food safety through investigating the gut physiology of farm animals, the gastro-intestinal microflora and their interactions **Call: FP7-KBBE-2007-2B**

The purpose of this project is to investigate gut physiology and its relationship to gut colonisation by normal and pathogenic microflora. The results will provide an understanding of the interactions of the gut and its contents. Many intensive farming systems have used antibacterial medicines as prophylactic treatments and growth promoters, especially in young animals. However, as such treatment is now banned in the EU there is considerable interest in finding alternative strategies. Such strategies would also be of interest to low input livestock production. The choice of alternatives, and their administration, needs to be based on a sound understanding of gut physiology and the interaction with bacterial colonisation, especially around the time of weaning.

Funding scheme: Small collaborative project.

Expected impact: The project is expected to support the competitiveness of European livestock production within the context of European policies on sustainability, food and consumer safety and animal health and welfare.

KBBE-2008-1-3-02: Foot-and-mouth disease: improve and / or develop vaccine, vaccination strategies and diagnostics assays for free and endemic settings – SICA **Call: FP7-KBBE-2007-2B**

FMD is still the one of the most feared animal diseases. Although FMD has been eradicated in the EU, outbreaks such as that observed in 2001 in the UK can have catastrophic consequences. Moreover, FMD is endemic in neighbouring countries such as Turkey and incursions of FMD into the EU territory remain a constant threat. In addition, FMD is endemic in many developing countries and is an important impediment for livestock growth and food security. Immunization against FMD still relies on principles which had been established decades ago. This collaborative research will focus on: 1) substitution of vaccine potency tests in animals by other data (e.g. correlation of in vitro data, serology, interferon-induction with protection); 2) assessment and, if possible, improvement of heterologous protection by FMD vaccines including vaccines which cover a broader range of field strains (e.g. multivalent vaccines) 3) development of vaccines or alternatives (antivirals) with rapid onset and longer duration of immunity 4) improvement in diagnostics, e.g. complementary confirmatory 'DIVA' tests (e.g. IgA in saliva of carrier animals, confirmatory tests for NSP-serology) 5) improving knowledge on FMDV transmission in recently vaccinated animals. Participation of industry and relevant third countries, in particular endemic countries, is encouraged.

Funding scheme: Small collaborative project.

Additional information: SICA – Minimum number of participants: 2 from different member States or associated countries and 2 from different ICPC countries where FMD is endemic.

Expected impact: Improvement of existing tools for the prevention and control of FMD disease applicable in free and/or endemic settings. Contribution to improvement of livelihood of rural areas through improvement of livestock health, international collaboration, collaboration with industry.

Contribution to the Global FMD Alliance and to the Global Roadmap for Improving the Tools to Control FMD in Endemic Settings¹².

KBBE-2008-1-3-03: Improve tools and strategies for the prevention and control of classical swine fever **Call: FP7-KBBE-2007-2B**

Eradication of classical swine fever (CSF) in domestic pigs has been achieved in wide areas within the EU but the disease is endemic in new member states (Romania and Bulgaria). Sporadic incursions still occur in free areas in particular due to the persistence of the virus in wild boar populations. CSF is also prevalent in some Asian and Latin American countries with considerable pig production and trade. Research in this collaborative project should take stock of recent developments in new generation live marker vaccines and molecular diagnostic tools. It will focus in particular in the following areas: 1) standardization of newly developed diagnostic methods applicable to domestic pigs and in wild boar; 2) Development and validation of new methods for the easy selection of suspicious animals (e.g. using thermographic infrared technology); 3) Molecular epidemiology for a better risk analyses; 4) Final development and testing of the latest (3rd generation) modified live CSFV marker vaccines and accompanying DIVA diagnostics 5) new methods for the easy oral application of the vaccine 6) role and pathogenesis of CSF virus reservoirs 7) Validation of the newly developed strategies, including an epidemiological modelling 8) exploration of alternative methods of suppression of viral replication. Participation of relevant third countries and industry is encouraged.

Funding scheme: Small collaborative project.

Expected impact: This project will deliver improved tools and strategies for the prevention and control of CSF taking into consideration the threat due to its persistence in wild boar and its presence in domestic pigs in some new member states and neighbouring countries. It will widen the international research collaboration with relevant third countries recommended for trans-boundary animal diseases (TADs) and collaboration with industry.

Area 2.1.4 Socio-economic research and support to policies

Providing the tools needed by policy makers and other actors to support the implementation of relevant strategies, policies and legislation and in particular to support the building of the European Knowledge Based Bio-Economy (KBBE) and the needs of rural and coastal development. The Common Fisheries Policy will be supported through the development of adaptive approaches supportive to a whole ecosystem approach for the harvesting of marine resources. Research for all policies, including the Common Agricultural Policy, will include socio-economic studies and cost-benefit analysis, comparative investigations of different farming systems including multifunctional ones, cost-effective fisheries management systems, the rearing of non-food animals, interactions with forestry and studies to improve rural and coastal livelihoods.

KBBE-2008-1-4-01: Development of new diagnostic methods in support of Plant Health policy **Call: FP7-KBBE-2007-2B**

This Project will build a sustainable diagnostic resource to enable 'DNA-barcode identification' ultimately for all quarantine plant pests or pathogens of statutory importance. Key work will include: obtaining or producing relevant vouchered sequence data for individual pests or pest groups and position them in a correct taxonomic context, developing generic diagnostic tools based

¹² <http://www.endemicfmdroadmap.net/>

on these barcode sequences; linking vouchered sequence information to published biological information; developing strategic approaches and methodologies to enable the establishment of DNA banks and access to digital voucher specimens.

Funding scheme: Small collaborative project.

Expected impact: The project will significantly help tackle increasing risks to EU plant health from exotic pests linked to increased globalisation of trade in plants/products. It will support better cooperation between EU diagnostic laboratories and potential moves towards reference laboratories by providing central approaches and a standardised and vouchered resource for using DNA/RNA sequence data in diagnostics for quarantine plants pests and pathogens.

KBBE-2008-1-4-02: Deep sea fisheries management

Call: FP7-KBBE-2007-2B

Fisheries have over the last decades expanded into deeper waters, exploiting pristine populations which in many cases already show evidence of a severe decline. The deep sea fisheries also affect the biodiversity in deep sea ecosystems both due to habitat destruction, but also because species which are not targeted by the fishery (both vertebrates and invertebrates) are caught incidentally and discarded. Effective management actions are urgently needed because deep sea ecosystems are particularly vulnerable to exploitation and may be in risk of irreversible damage. The project will design a framework for managing deep sea fisheries on the basis of monitoring of fisheries and stocks, using the data and information currently available. It will also identify gaps in knowledge that severely limit the basis for management decisions and describe what is needed for implementing reliable long-term management schemes. The project will focus on a set of specific cases from which general lessons may be learnt. ICPC relevance.

Funding scheme: Small collaborative project.

Expected impact: The project will provide the basis for management of deep sea fisheries in a phase where reversing negative trends in abundance and impacts on biodiversity is the main objective, and will contribute to establishing a long-term management scheme in accordance with the Common Fisheries Policy.

KBBE-2008-1-4-03: Fisheries management approach based on 'maximum acceptable limits of negative impacts'

Call: FP7-KBBE-2007-2B

The Common Fisheries Policy (CFP) must increasingly integrate environmental concerns and seek to apply an ecosystem approach. These issues are presently addressed by regulation of the technologies that can be used to fish, by closed areas and by limits on landings. This approach has led to increasingly detailed micromanagement of the fishing technologies with some negative results including high levels of discarding in some fisheries. An alternative approach is instead to manage fisheries in a similar way as is done in some other sectors, i.e. by defining a maximum acceptable negative impact and by then leaving it to those concerned to identify the means to meet such requirements ("results-based management"). As a first step such an approach is initiated in relation to the elimination of discards in European fisheries. The project will review the international experiences with such "results-based management" in relation to environmental impacts of fisheries including discards and investigate the options for management on basis of such principles in Europe. The project will address research questions relating to the performance of "results-based management" in relation to minimising ecological impacts of fisheries, the social and economic outcomes and institutional aspects relating to decision making and implementation. The research will include studies of institutional, legal and technical aspects of such management approaches.

Funding scheme: Small collaborative project.

Expected impact: The project will develop a fundamentally new approach to fisheries management in Europe. The results from this project will find immediate use in the development of the new discards policy in accordance with the Common Fisheries Policy.

KBBE-2008-1-4-04: Common Agricultural Policy – the dynamic and spatial dimension

Call: FP7-KBBE-2007-2B

A wide series of quantitative models exists for the analysis of agricultural market policies under pillar 1 of the CAP. There are fewer models for the analysis of the wide-ranging and more diverse policy measures under pillar 2. The proposal should target the development of operational interfaces to calculate and evaluate Rural Development indicators from the Common Monitoring and Evaluation Framework on the basis of the results of a regional EU agricultural economic model. Other available information at regional level also data based on GIS techniques and linked to area-based measures should be considered. Regional agricultural economic models should be adapted to the need to Rural Development policy modelling. Calculated Rural Development indicators should refer to the three axes of rural development policy and where possible take into account existing spatial data-bases and downscaling algorithms in order to improve ex ante policy impact assessment. The coverage of the model should be EU-27 plus all accession candidates. Necessary changes to economic models, e.g. in order to properly capture regional price transmission, effects of enlargement on the common market or recent developments in the CAP (representing the different regional implementation systems of the Single Farm Payment and the Single Area Payment Scheme), should be integrated in the proposal. The development of a new method to evaluate results and the quality of data in a systematic way should be proposed as well.

Funding scheme: Small collaborative project.

Expected impact: The project will allow to break down the developed policy options to regional dimensions. This will provide very useful tools for policy making.

KBBE-2008-1-4-05: Macro-economic analysis of competitiveness, including non-tariff barriers

Call: FP7-KBBE-2007-2B

In a world developing towards free trade of agricultural and food products non-tariff trade barriers are of increasing importance. The project would provide a comparative study on conditions for importing agricultural and food products into the EU and into the main competing players (in addition to those mentioned below, also Brazil, Argentina, Australia and New Zealand). The research should be underpinned by the creation of a database on non-tariff barriers for countries that are key markets for EU agri-food exports (especially US, Russia, Canada, Japan, China, India). The product coverage should be as wide as possible (e.g. WTO definition of agri-food products). Case studies are needed in the following sub-sectors: meat, dairy, fruit and vegetables. The research should take account of work developed by international organisations, especially the OECD.

Funding scheme: Small collaborative project.

Expected impact: The project will allow to develop options for the trade negotiations and disputes based on sound analysis.

KBBE-2008-1-4-06: Societal Impact of Organic Farming

Call: FP7-KBBE-2007-2B

Research under this task would aim to identify organic farming's multiple functions and seek to provide a detailed insight into the corresponding economic, environmental and social impacts of both the present level of organic farming and under scenarios for larger scale conversion into organic farming in Member States. The aim is to develop a common methodology to estimate the corresponding costs and benefits of organic farming, at the farm level, and for the entire economic

system. Research is aimed at recommendations and strategies for policy makers to explore and optimise the regulatory framework of the CAP with respect to organic farming's multifunctional benefits. Furthermore the project will identify the contribution of organic farming to the European Bioeconomy.

Funding scheme: Coordination and support action aiming at supporting the KBBE.

Expected impact: Better targeting of the regulatory framework for organic farming to increase societal benefits.

KBBE-2008-1-4-07: Exploring the pros & cons and the public perception of GM animals

Call: FP7-KBBE-2007-2B

The project will assess the potential use of genetic modification in farmed animals, specifically including fish as well as terrestrial animals. It will focus on the description of the techniques, both existing and under development for the production of transgenic animals; the pros and cons of the currently envisaged applications for industry, society and the animals. It will also examine public perceptions of transgenic animals, in particular from the point of view of the use of food derived from them.

Funding scheme: Coordination and support action aiming at supporting the KBBE.

Expected impact: The project will inform European policy formation on transgenic animals and will impact on the competitiveness of European animal production.

KBBE-2008-1-4-08: Characterisation and valorisation of Andean soil microbial diversity to support sustainable crop production and agro-ecosystems – SICA (Latin America-Andean region)

Call: FP7-KBBE-2007-2B

The project shall explore the existing large biodiversity of soil micro-organisms of Andean countries and how this diversity can be best managed to contribute to the production of high-quality crops, e.g. with improved nutrient uptake and higher levels of bioactive compounds. Furthermore, the project shall contribute to the identification of organisms with new, desirable properties for potential uses as agricultural inputs, including biofertilizers and pest control agents. For the characterisation of microorganisms, the project shall make use of modern metagenomic techniques. Intellectual property issues shall be considered by the project consortium to ensure an equitable sharing of information, technology and material.

Funding scheme: Small collaborative project.

Additional information: SICA – Minimum number of participants: 2 from different member States or associated countries and 2 from different ICPC countries from the Latin America-Andean region

Expected impact: This research area shall contribute to implementing safer and more efficient agricultural practices, supporting sustainable agriculture, food security and environmental protection.

KBBE-2008-1-4-09: Agro-Economic Modelling Support Centre

Call: FP7-KBBE-2007-2B

An Agro-Economic Modelling Support Centre should be developed to ensure a scientific validated and regular use of central modelling tools by the Commission to support Common Agricultural Policy analysis and development. It should be closely linked to the research projects funded under the Framework Programmes, in order to maintain, update and use modelling tools resulting from selected projects.

The Coordination and Support Action should provide a stable platform for ex-ante and ex-post policy analysis tools and will make them readily available for Commission services, within the framework of a long-term strategy for research and policy support in the area of socio-economic analysis of Sustainable Agriculture and Rural Development.

Funding scheme: Coordination and support action aiming at supporting the KBBE.

Expected impact: The CSA will improve the up-take of modelling results by policy making.

KBBE-2008-1-4-10: Agriculture and sustainable development – ERANET¹³

Call: FP7-ERANET-2008-RTD

The European model of agriculture is based on sustainable and ecologically sound concepts of land use. Agricultural production is using a wide range of options to remain competitive from differentiated quality products or bio-energy to public services. Research programmes funded by Member States or regional bodies are successful in addressing specific questions, however, they remain fragmented. The ERANET will allow to identify common issues, which should be addressed in joint efforts.

Funding scheme: Coordination and support action.

Additional information: ERA-NET.

Expected impact: The ERA-Net will allow to identify and address common European challenges for sustainable European agriculture.

KBBE-2008-1-4-11: Addressing the gap between the Strategic Research Agendas (SRA) of relevant European Technology Platforms and the preparedness of the scientific community in Europe - Towards implementing the SRA

Call: FP7-KBBE-2007-2B

Following the publication of a Strategic Research Agenda (SRA), Technology Platforms have surveyed the current preparedness of European scientists to contribute to the strategic research objectives. As the next step towards implementing the SRA the gaps between strategic objectives and research preparedness will be addressed in a series of specific workshops to help forge the necessary links between scientists and applications. In parallel, the Technology Platform will develop mechanisms to encourage discussions between European and National research programmes that promote SRA implementation.

Funding scheme: Coordination and support action aiming at supporting the KBBE.

Expected impact: The gap between the Strategic Research Agendas (SRA) of relevant European Technology Platforms and how prepared the European scientific community is to implement the SRA will be addressed.

Activity 2.2: Fork to farm: Food (including seafood), health and well being

Area 2.2.1 – Consumers

Understanding consumer behaviour and consumer preferences as a major factor in the competitiveness of the food industry and the impact of food on the health, and well-being of the European citizen. The focus will be on consumer perception and attitudes towards food including traditional food, understanding societal and cultural trends, and identifying determinants of food choice and consumer access to food. The research will include the development of data bases on food and nutrition research.

¹³ This topic is subject to a joint call for ERA-NETs across the Themes. See annex xx

KBBE-2008-2-1-01: Measures aimed at promoting healthy eating habits

Call: FP7-KBBE-2007-2B

The aim should be the assessment of efficacy, cost effectiveness, best practices on previous or on-going measures aimed at promoting healthy eating habits. Based on this assessment, methods for wider applicability and design of potentially more effective measures should be developed. The short and long term impact on consumer behaviour (purchasing patterns, consumption, changing attitudes to food groups, etc) resulting from actions taken by public authorities to influence food consumption patterns and to promote health (specific food related initiatives and food as part of wider health promotion actions) would be analysed. Consideration should also be given to the extent to which experience from the private sector in product launch/brand placing activities might make public sector actions more effective. The result should allow identifying best practices on public health nutrition actions that could be translated into other regional and national contexts.

Funding scheme: Small collaborative project

Expected impact: Assessment of efficacy, cost effectiveness, best practices, wider applicability and design of potentially more effective measures to modify consumer behaviour, including the inclusion of private sector experience in product launch/brand placing activities which might make public sector actions more effective.

Area 2.2.2 Nutrition

Understanding beneficial and harmful dietary factors as well as the specific needs and habits of population groups as a major controllable factor in the development and reduction of occurrence of diet-related diseases and disorders including obesity and allergies. This will involve the investigation of new dietary strategies, the development and application of nutrigenomics and systems biology, and the study of the interactions between nutrition, physiological and psychological functions. It could lead to reformulation of processed foods, and development of novel foods and ingredients, dietetic foods and foods with nutritional and health claims. The investigation of traditional, local, and seasonal foods and diets will also be important to highlight the impact of certain foods and diets on health, and to develop integrated food guidance.

KBBE-2008-2-2-01: Optimal human cell function and nutrition **Call: FP7-KBBE-2007-2B**

New research opportunities in the nutrition area are arising through the use of cutting-edge technologies for *in vivo* molecular probing of cellular compartments as well as for the targeted delivery of molecules at the (sub-)cellular level. The overall objective of this topic is to increase the bioavailability of essential nutrients at their (sub-)cellular sites of biological action in order to improve cell functionality and, thus, the whole organism vitality. Research shall combine knowledge in following areas: nutrition; cell biology; and enabling technologies for targeted delivery and molecular probing. The application of this knowledge shall ultimately lead to innovative food formulations, nutrient delivery systems, and food ingredients.

Funding scheme: Small collaborative project

Expected impact: The targeted delivery of nutrients to their cellular and/or sub-cellular site of biological action will contribute to the formulation of health-promoting food delivery tools. Novel research tools might be developed to study (sub-)cellular nutrition mechanisms such as nutrient-receptor interactions.

KBBE-2008-2-2-02: Bioactive compounds in traditional food products (SICA Black Sea Region) **Call: FP7-KBBE-2007-2B**

The aim of the topic is to identify and characterise bioactive compounds in traditional food products that can be beneficial for human health and are typical for the diet of EU neighbouring regions. Scientific data on the risks and benefits linked to these products or compounds will be

produced and evaluated. It will include the study of the role and the mechanisms (absorption and activity) of bioactive compounds and also the factors influencing their functional properties (e.g. processing).

Funding Scheme: Small collaborative project

Additional information: Specific International Cooperation Action – Minimum Number of Participants: 2 from different MS or AC and 2 from different ICPC that are part of the European Neighbourhood Policy (ENP) in the Black sea region.

Expected impact: To increase knowledge of nutrients, food components and/or bioactive compounds effects on health, to provide sound scientific data and to help in substantiating health and nutritional claims. Enhance the cooperation between scientific disciplines and stakeholders (nutrition, practitioners, local food companies, etc.).

KBBE-2008-2-2-03: Obesity prevention in the Mediterranean area (SICA Mediterranean Partner Countries) Call: FP7-KBBE-2007-2B

Obesity is becoming a serious issue in the Mediterranean area and there is a need to better understand the prevalence of diet-related chronic diseases and disorders. Research should focus on the adaptation of standardised methodologies for the collection of data on the relation between food intake and health/disease conditions in that area as well as propose intervention measures to promote healthy eating habits with a particular focus on children. The involvement of Mediterranean Partner Countries in European epidemiological studies should be explored.

Funding scheme: Small collaborative project

Additional information: Specific International Cooperation Action – Minimum Number of Participants: 2 from different MS or AC and 2 from different ICPC with a special focus on Mediterranean partner countries.

Expected impact: Development of methodologies and tools in Mediterranean partner countries to be involved in epidemiological studies on the impact of diet on health.

Area 2.2.3 Food processing

Optimising innovation in the European food industry through the integration of advanced technologies into traditional food production including fermented food, tailored process technologies to enhance the functionality, quality and nutritional value of food including organoleptic aspects in food production including new foodstuffs. Development and demonstration of high-tech, eco-efficient processing and packaging systems, smart control applications and more efficient valorisation and management of by-products, wastes, water and energy. New research will also develop sustainable and novel technologies for animal feed, including safe feed processing formulations and for feed quality control.

KBBE-2008-2-3-01: Exploring the micro-structure of foods Call: FP7-KBBE-2007-2B

The understanding, development and control of processes for new foods are hampered by the limits imposed by the investigation tools, both on a laboratory and industrial scale. This topic aims at helping fill this gap by a better understanding of the food micro-structure, the spatial distribution of food components within foods, the dynamics of the physical properties of food and the effects of processing on food quality (nutritional, sensory, safety) thanks to the development of reliable, efficient and fast online and in-line techniques able to visualise and monitor the structure. As prototypes are expected among the results, economic aspects will have to be taken into account. Collaboration of food technologists, sensor and IT specialists is needed, and SMEs from the sensor sector should be involved.

Funding scheme: Small collaborative project

Expected impact: New knowledge for the development and sustainability of innovative processes and products supporting the competitiveness and the sustainability of European industries, in particular SMEs. Increased number of patents in the area and new market opportunities. Strong contribution to renewing the offer of the food industry to the consumers.

KBBE-2008-2-3-02: Alternatives to sulphites in foods

Call: FP7-KBBE-2007-2B

The aim is to develop physical, chemical and/or biological alternatives to the use of sulphites and sulphur dioxide as preservatives and antioxidants in foods and beverages, targeting especially foodstuffs in which sulphites are permitted at high levels as well as highly consumed foodstuffs.

Funding scheme: Small collaborative project

Expected impact: Contribution to consumer safety by reducing the intake of sulphites, but safeguarding microbial safety. Development of new and innovative products supporting the competitiveness of the European food industry.

KBBE-2008-2-3-03: Training and career development for future food scientists

Call: FP7-KBBE-2007-2B

The main objective of this topic is to identify the training and career requirements of future food scientists and technologists and suggest how specific measures can be implemented in a timely and effective manner. The (Ph.D.) student should be more ready for the working life, be it in science or the industry, and the food science carrier should be made more attractive to young people. This will lead to a new generation of skilled, flexible and enthusiastic food scientists and technologists, active in both public and private science and technology activities at all stakeholder levels along the whole food chain including an effective knowledge transfer. In the end, this will lead to a more innovative and competitive food and drink sector, which is a key area for job creation, global competition and societal benefit in Europe. Links with running FP6 and FP7 projects as well as participation of professional organisations, academia, research institutions and industry is necessary.

Funding scheme: Coordination and support action aiming at supporting the KBBE

Expected impact: Training needs must be identified, impacts and delivery benchmarked, career paths defined and training and education programmes developed to better prepare the students for their coming carrier.

Area 2.2.4 Food quality and safety

Assuring chemical and microbiological safety and improving quality in the European food supply. This will include understanding the links between microbial ecology and food safety; developing methods and models addressing the integrity of the food supply chains; new detection methods, traceability and its further development, technologies and tools for risk assessment, including emerging risks, management, and communication, as well as enhancing the understanding of risk perception. This will also include science based methods for risk benchmarking in the field of food safety.

KBBE-2008-2-4-01 Perfluorinated organic compounds in food

Call: FP7-KBBE-2007-2B

Perfluorinated organic compounds arising from anthropogenic sources are present as contaminants in the food chain. Research will contribute to the risk assessment of the human exposure through providing data on perfluorinated organic compounds in food; sources, routes of contamination and their relative importance, and estimate the dietary intake. Validated analytical methods and reference materials for foods will be developed.

Funding scheme: Small collaborative project

Expected impact: Contributing to the risk assessment of human exposure to perfluorinated organic compounds from food. Large impact on health and consumer protection. Support to contaminants policies (Directorate-General Health and Consumer Protection) and to the European Food Safety Authority.

KBBE-2008-2-4-02: Biocides and antibiotic resistance

Call: FP7-KBBE-2007-2B

In contrast to antibiotic resistance by various mechanisms, the resistance against the family of biocide molecules (including disinfectants, antiseptics, preservatives, and sterilants) has been studied and characterised much less. Research in this area shall determine whether the increased use of biocides is associated with an increase of antibiotic resistance in food pathogens and the impact on human health. Possible measures should be proposed if the use of certain domestic and industrial biocide use represents a risk for human health.

Funding scheme: Small collaborative project

Expected impact: Identification of potential biocide resistant pathogens for combating the dissemination of nosocomial diseases and food-borne pathogens. Contribution to the use of control measures of certain domestic and industrial biocides. Contribution to Community Environment and Health policy.

Area 2.2.5 Environmental impacts and total food chain

Protecting both human health and the environment through a better understanding of the environmental impacts on and of food/feed chains. This will involve study of food contaminants and health outcomes, monitoring of environmental effects, developing enhanced tools and methods for the assessment and management of impacts on, and resistance of, food and feed chains to global changes, in particular to the environment. Assuring quality and the integrity of the food chain requires new models for commodity chain analysis and total food chain management concepts, including consumer aspects.

KBBE-2008-2-5-01: Influence of food contaminants on early programming leading to obesity

Call: FP7-KBBE-2007-2B

In utero and/or early developmental exposure to food contaminants may play a role in the development of obesity later in life. Further research is needed with focus on compounds with hormone-like activity. Exposure assessments (*in utero* and early childhood) and hazard characterisation (mechanisms of action, dose-response analysis) using relevant *in vitro* and *in vivo* studies are expected outputs.

Funding scheme: Small collaborative project

Expected impact: Improving the knowledge of the effects of early exposure (foetal, infantile and childhood) to food contaminants on health and development of obesity. Large impact on health and consumer protection. Contribution to Community Environment and Health Policy.

KBBE-2008-2-5-02: A lead market vision for food

Call: FP7-KBBE-2007-2B

This topic aims at helping develop a science-based lead market vision that is streamlined to the specific problems and dynamics of the food market, with its special characteristics (food supply chain, importance of SMEs). A policy-mix has to be developed in order to create a favourable business environment that allows industry develop and commercialise innovative food products on a competitive basis.

Funding scheme: Coordination and support action aiming at supporting the KBBE

Expected impact: Vision of a lead market strategy for the food market

KBBE-2008-2-5-03: Dissemination of research projects in the food sector

Call: FP7-KBBE-2007-2B

Dissemination measures can sometimes reach a full impact only after a project has ended, but when costs are not eligible any longer. This Coordination and Support Action (CSA) would give the means to consortia to effectively communicate their findings, in collaboration with other consortia, in the field of food science and technology, with emphasis on food safety and quality. The intention should be that the dissemination mechanisms developed are sustainable in the longer term and are designed to meet the needs of relevant stakeholder groups who would be the beneficiaries of the projects outcomes. This CSA is not only directed at consortia of EC-funded projects, but also at projects funded by other means (national, Member States in different configurations, global, industrial).

Funding scheme: Coordination and support action aiming at supporting the KBBE

Additional information: At least 5 participants representing 5 projects should be included out of which at least one has not received EC funding.

Expected impact: Effective common dissemination measures of research projects in the food area during and after the project duration.

Activity 2.3 Life Sciences, biotechnology and biochemistry for sustainable non-food products and processes

Area 2.3.1 Improved biomass and plant based renewables

Strengthening the knowledge base and developing advanced technologies for terrestrial or marine biomass production for applications in industrial processes and in energy production. This will include plant, animal and microbial genomics and metabolomics to improve the productivity and composition of raw materials and biomass feedstocks for optimised conversion to high added value products including biological resources utilisable in pharmaceutical industry and medicine, while exploiting natural or enhanced terrestrial and aquatic organisms as novel sources. This will fully incorporate life cycle analysis of biomass production practices, transportation, and storage and market deployment of bio-products.

Using or developing biotechnologies for novel and improved high quality, high added value and renewable forest-based products and processes to increase sustainability of wood and wood production, including timber, renewable materials and bioenergy stocks.

KBBE-2008-3-1-01: Plant natural products - Alternative sources for the synthesis of bioactive or industrial added value products

Call: FP7-KBBE-2007-2B

Plants and plant cells can synthesise complex metabolites that represent a vast resource of chemical diversity. These complex metabolites are generally low-volume/high added value products such as pharmaceuticals, perfumes and cosmetics, speciality chemicals (colorants, dyes, etc) and others.

The aim of this topic is to identify terrestrial plant metabolites which can impact health through a medicinal route. The proposal should cover the following items: (i) understanding the metabolic pathways leading to such compounds in order to enhance their production (ii) establishment of robust molecular screens in plants to identify bioactive compounds such as suspected or proven anti-inflammatory, anti-cancer, and anti-dementia agents. (iii) The feasibility of the industrial process to produce the most promising bioactive compounds should be addressed.

Funding scheme: Small Collaborative Project

Additional information: The participation of the USA is encouraged

Expected impact: Identification of plant metabolites that have an impact on human health and that can be extracted as pure compounds from cultivated plants or plant cells. Diversification of the plant natural products used as medical compounds and solving extractions and purification barriers to make the technology industrially exploitable.

KBBE-2008-3-1-02: Sweet sorghum – An alternative energy crop for biofuel production in semi-arid and temperate regions – SICA (Latin America, South Africa, India)

Call: FP7-KBBE-2007-2B

Sweet sorghum is a promising alternative crop for bioethanol production. Moreover, it is a "food-fuel-energy-industrial crop" which ranks fifth among the world's grain crops, requires low water/fertiliser input, has a high yield of grains and biomass (starch/sugars/lignocelluloses) for integrated multi-purpose processing and grows well in marginal lands, in semi-arid and temperate regions, including Africa, India, Latin America and Europe. A limiting factor for its widespread cultivation is the lack of varieties adapted to different growth conditions, including colder climate. Consequently, research should address the optimisation of sweet sorghum as an energy crop through breeding. Besides biomass yield and relevant quality traits, genetic improvement/selection should concentrate on general agronomic traits (such as water and nutrient use efficiency) and, in particular, adaptation of sweet sorghum to colder climates. The project should also address agronomic practices and harvesting technologies leading to improved yield, quality, sustainability and competitiveness of sweet sorghum production. Environmental and economic analysis of sweet sorghum cultivation, including energy balance and life cycle assessment, should also be carried out. International co-operation with third countries leading in biofuel production and energy crops will be an essential added value.

Funding scheme: Small collaborative project

Additional information: SICA – Specific International Cooperation Action. The project is expected to contribute to international co-operation with third countries which are signatories of S&T agreements with the EU from Latin America, South Africa and India. Minimum number of participants: two from two different MS or AC plus two from Latin America, one from South Africa and one from India.

Expected impact: Great market potential, as sweet sorghum is a potentially cheap feedstock for ethanol, also in the EU. Important environmental benefits (low water inputs) and good prospects for the development of rural areas.

KBBE-2008-3-1-03: European non-food crops and their industrial application

Call: FP7-KBBE-2007-2B

This coordination action should bring together stakeholders such as industry, academia, plant breeders and economists. Coordination of activities should result in a portfolio of industrial crops suitable for the different Member States and map the most promising plant-based products derived from these crops that meet the future needs of consumers and industry (e.g. fibres, resins, oils, speciality products...). The CSA should identify the necessary enabling technologies to overcome the bottlenecks in plant breeding (such as yield), and enable the conversion, extraction and processing of the envisaged compounds. Also it should identify the economic potential and best business opportunities for the industrial exploitation of European non-food crops.

Funding scheme: Coordination and Support Action (Coordination type)

Expected impact: Selection and prioritization of non-food crops which will enhance the competitiveness of the European industry, and improve rural development through diversification and provide new sustainable sources of income for the farming community.

KBBE-2008-3-1-04: Plant produced vaccines SICA (Russia and other ICPC)¹⁴

Call: FP7-KBBE-2007-2B

This project will focus on the development of innovative vaccines using plants as production systems. Plants offer many advantages over current production platforms by combining the benefits of traditional fermentor systems (containment, precise growth conditions) with those of plants (economy, safety, scalability). Specific technologies have been developed recently for the production of high-value recombinant proteins in plants. Remaining bottlenecks for these technologies include low yield of recombinant proteins, high production costs and lengthy development and testing of the plants. The overall aim of the project will be to identify and establish higher antigen yields production systems, which are highly controllable and reproducible. This includes the selection of the most suitable plant species and culture conditions, improved understanding of antigen presentation and immunity, rapid screening and up-scaling, rapid development of vaccine variants and novel technologies for improved vaccine production.

Funding Scheme: Small collaborative project

Additional information: SICA – Specific International Cooperation Action. Minimum Number of participants 2 from different MS or AC countries and 2 from different federal units (provinces, oblasts, republics, territories, districts, federal cities) from Russia. The participation of other ICPC countries with bilateral agreements such as South Africa is encouraged.

Expected impact: High efficiency and low cost production of vaccines. The project is expected to contribute to the "EU-Russia Common Space for Education and Research" and to the S&T bilateral agreement between the EU and the Russian Federation and to the EU-SA dialogue on KBBE on the basis of mutual interest and shared benefits.

KBBE-2008-3-1-05: Development of fermentor-like applications and other plant-based containment systems for molecular farming

Call: FP7-KBBE-2007-2B

Molecular farming for pharmaceutical products and other high-value industrial compounds will be supported by developing containment plant production systems. Specific technologies will be developed for contained growth of transgenic plants producing high-value recombinant proteins and biochemicals. Plant culture, for example hydroponic or *in-vitro*, could be used for the propagation and/or production of plants either alone, or adapted for harvesting rhizo-secreted products. Fermentor-like applications for plants or plant cells are another example of technologies that could be developed. The overall aim of the project will be to establish high-yielding production systems, which are highly controllable and therefore result in reproducible consistency of plants and final product yield. This includes the selection of the most suitable plant species and the optimisation of culture conditions for plant growth and/or product expression, and efficient downstream processing.

Funding scheme: Small Collaborative Project

Expected impact: The project is crucial for pharma and fine-chemical production and is opening a new avenue for high income in the horticultural industry. The project can have a significant impact on establishing molecular farming as a feasible industry in Europe by establishing containment strategies that allow for isolation of molecular farming from conventional agricultural activities and by demonstrating technologies that facilitate the development of a consistent manufacturing process. This kind of multi-disciplinary translational science will be of value to commercial

¹⁴ A complementary topic focused on the development of fermentor-like applications and other plant-based containment systems for molecular farming (KBBE-2008-3-1-05), is opened in this call.

partners, in particular SMEs who will recognise potentially lucrative paths for product development using their existing horticultural facilities and expertise.

Area 2.3.2. Bioprocesses

KBBE-2008-3-2-01: Molecular modelling for rational design of industrial enzymes – SICA (Russia)

Call: FP7-KBBE-2007-2B

Enzymes are increasingly used in the chemical industry. Computational chemistry, bioinformatics, enzyme structure modelling, molecular docking and dynamics, quantum chemistry and corresponding hybrid methods have been developed to describe the intimate details of the biocatalytic mechanisms.

The objective of the topic is to develop rational enzyme design methods based on molecular (in-silico) modelling in order to produce a next generation of highly efficient biocatalysts with an expanded range of substrates, improved enantioselectivity and enhanced catalytic activity for industrially important conversions. Optimization of multi-enzyme complexes should also be considered. Research should address the development of quantitative parameters which adequately describe the efficiency of the biocatalysts under development. Improved enzymes are particularly required in certain technological areas, such as fine organic synthesis, biotransformations, biomass conversion and the food industry.

Funding scheme: Small Collaborative Project.

Additional information: SICA - Specific International Cooperation Action (Russia). Minimum Number of Participants: 2 from different MS or AC and 2 from different federal units (provinces, oblasts, republics, territories, districts, federal cities) from Russia. The participation of Eastern Europe and Central Asia (EECA) partners is also encouraged.

Expected impact: Enhance industry's capabilities for rational design of biocatalysts and their fast quantitative evaluation. The project is expected to contribute to the "EU-Russia Common Space for Education and Research" and to the S&T bilateral agreement between the EU and the Russian Federation, on the basis of mutual interest and shared benefits

KBBE-2008-3-2-02: Industrial bioprocesses for fine and speciality chemicals

Call: FP7-KBBE-2007-2B

Specialised, high-value chemicals (e.g. vitamins, amino-acids, antibiotics, chiral chemical compounds) usually require long chemical synthesis routes involving complex reaction steps. These can often be simplified either by employing biocatalysts or by using fermentation processes. In many cases, these biotechnological routes are superior to chemistry in terms of cost and eco-efficiency.

To broaden the range of fine and speciality chemicals produced by biotechnological routes, research is needed on aspects such as (i) the use of novel enzyme classes such as lyases, racemases, metallo-enzymes, oxidases and peroxidases (ii) the development of modified strains able to produce new chemicals and resistant to heat or low pH (iii) innovative downstream chemistry, and others.

The objective of this support action is to screen potential biotechnological routes yielding fine and speciality chemicals that could be competitive with chemical syntheses and identify the most promising ones in terms of eco-efficiency, economic potential, complexity of the synthesis pathways, etc. The project is also expected to identify relevant technological barriers and RTD needs for the development of the most promising candidates and identify European flagship projects.

Funding scheme: Coordination and Support Action (Coordination type)

Expected impact: Increase the competitiveness of European industry. Reduce environmental impact of complex chemical synthesis.

KBBE-2008-3-2-03: Nanobiotechnology based biosensors for optimised bioprocesses¹⁵

Call: FP7-KBBE-2007-2B

Industrial biochemical process design will greatly benefit from the development of specific on-line nanobiosensors applicable in the industrial environment. The purpose of this research collaborative project is to develop high through-put nanobiosensors for the on-line monitoring of nutrients and metabolites in cultivation systems and process streams. The nanobiosensors should be tailored and applicable to relevant biocatalytic processes in industrial environment. The nanodevices have to be developed for chemical and biochemical analyses, including molecular and cellular detection and monitoring using optical and/or electrochemical detection systems. The research should include a quantitative analysis of the economic/market viability of such sensors and compare them to existing biosensors.

Funding scheme: Small Collaborative Project

Expected Impact: On-line monitoring of nutrients and metabolites in cultivation systems and processes streams going well beyond the state of the art. Substantial innovation in Industrial biotechnology biocatalytic process design.

KBBE-2008-3-2-04: Novel nanobiotechnology (bio to nano) processes and products¹⁵

Call: FP7-KBBE-2007-2B

The field of nanobiotechnology is an extremely rapidly growing research area which is introducing new concepts and high added value products. Nanobio scientific and technical challenges are large and require an interdisciplinary (convergent) approach. In order to support its coherent development at the European level immediate and sustained actions involving the main European expertise are needed. The objective of this support action is to screen the most promising short and long term nanobiotechnology "bio to nano" based products and industrial processes (excluding nanomedicine applications). It will also provide evidence for the long-term interdisciplinary research activities/actions needed to generate new knowledge as well as the actors to be involved. Nanobiotechnology related safety, environment and ethical aspects should be also considered.

The strengths and weaknesses of EU research with respect to the international scene throughout the "bio to nano" technology area should be analysed and European potential flagship projects identified.

This support action should build on the experience of the recent European activities examining capacity building in nanobiotechnology (theme 4 - nanosciences).

Funding scheme: Coordination and Support Action (Support type)

Specific features: The consortium should count with a fair representation of the main European actors and stake holders in this area.

¹⁵ A complementary topic on nanobiotechnology for industrial processes and products is open in area 4.1.1 of the "Nanosciences, nanotechnologies, materials and new production technologies-NMP" Theme (Theme 4)

Expected Impact: Support the development of new nanobiotechnology-based products and industrial processes by identifying key bottlenecks to generate knowledge that will enable manipulation of biological entities at nanoscale.

KBBE-2008-3-2-05: Life cycle analysis and socioeconomic assessment of integrated biorefineries

Call: FP7-KBBE-2007-2B

The integrated bio-refinery is a concept involving the conversion of renewable biomass feedstocks (such as wood, cereals, oil crops, etc) into a broad range of bio-products, thus minimising waste streams and maximising the value of the feedstock. While LCAs of conventional chemical processes and products are well established, studies on biobased processes and products with respect to environmental, economic and social impacts are rather limited.

The objective of this support action is to develop a life cycle assessment (LCA) embracing the entire cradle to grave cycle of an integrated bio-refinery or product: from raw material production and harvesting to processing, manufacture, product use, emissions to all environments, toxicity and risks. Quantitative socioeconomic assessments should address such issues as food/non-food competition, land use, market dynamics of raw materials and products, international trade, public acceptability and impacts on rural development. These quantitative socioeconomic assessments should build upon existing economic data and generate new ones, in particular in key biobased product areas such as fine and bulk chemicals, biomaterials and enzymes.

Funding scheme: Coordination and Support Action, (Coordination type)

Additional information: Participation of US, Canada and South Africa would be desirable.

Expected impact: contribution to the safety, acceptability and economic efficiency of the KBBE.

KBBE-2008-3-2-06: Development of high performance composites based on flax and hemp

Call: FP7-KBBE-2007-2B

The objective of this support action is to bring together stakeholders from industry, academia, research centres, economists, etc with the aim of assessing the various factors which may influence the development of a market for flax and hemp as biobased materials. Environmental and socio-economic aspects will then be an inherent part of the assessment which will identify the critical factors for the success and failure in building new business opportunities and markets for these renewable raw materials.

Funding scheme: Coordination and Support Action (Coordination type)

Expected impact: Hemp and flax are low-input crops that are widely cultivated (Europe has 16% of the world's flax production). Improving the effectiveness of the flax and hemp market chain for technical use in cooperation with industrial firms. The aim is to set up an international platform including branch organizations, universities, factories and commercial parties connecting applied research and marketing knowledge in the field of technical use of flax and hemp.

KBBE-2008-3-2-07: Industrially relevant products and processes from marine biotechnology

Call: FP7-KBBE-2007-2B

Marine biotechnology has an enormous potential to provide industry with novel products and processes based in the use of marine organisms/resources, at the whole, cell, or molecular level. An important area is the use of enzymes and microorganisms from a range of extreme environments

such as deep sea thermal vents. e.g. enzymes capable to work at lower temperatures or those showing high efficiencies under pressure. Marine metagenomics provides a novel approach to the exploitation and understanding of as yet, poorly understood marine biodiversity. Research is needed on the development and use of novel tools and approaches to understand the biochemistry, physiology and phylogeny of marine microorganisms leading to the development of a range of industrially relevant products and processes.

Funding scheme: Small Collaborative Project

Additional information: The participation of US is encouraged

Expected impact: Contribution to the model of KBBE; exploitation of marine resources.

Area 2.3.3. Environmental biotechnologies, Use of waste and by-products

KBBE-2008-3-3-01: Upgrading of wood, wood-related residues and humic-origin substances to value-added chemicals and materials: from biological understanding to innovative applications – SICA (Russia)

Call: FP7-KBBE-2007-2B

Wood, wood wastes, residues of the wood-processing industry and humic substances represent rich sources of aromatic structures. Their upgrading to value-added specialty chemicals and materials opens an opportunity for creation of new types of forest-based value chains. They are also promising sources for novel applications in sectors such as agriculture, environmental remediation and health.

The aim of the proposal is to apply life sciences or biotechnological approaches for development of new types of functional chemicals and materials with tailored properties based on wood components and humic substances. It should also address the development of novel applications of the mentioned biological resources in sectors such as agriculture, remediation and others, on the bases of their biological diversity.

Funding scheme: Small Collaborative Project

Additional information: SICA – Specific International Cooperation Action (Russia). Minimum Number of Participants: 2 from different MS or AC and 2 from different federal units (provinces, oblasts, republics, territories, districts, federal cities) from Russia.

Expected impact: Contribution to enlarging the economic potential of the forest-related industry and better understanding of the potential of humic substances.

KBBE-2008-3-3-02: Marine anaerobic bioremediation

Call: FP7-KBBE-2007-2B

Coastal anaerobic sediments are the ultimate global sinks for accumulation of chlorinated hydrocarbons such as polychlorinated biphenyls (PCBs). PCBs are still nowadays serious environmental pollutants at the global scale because previously contaminated sediments, landfills and older electric transformers still exist as important sources of PCB pollution. Although PCBs are extremely resistant to biodegradation, it has been shown that in coastal anaerobic sediments microbial activity of reductive dehalogenation plays a significant role in PCB biotransformation. The aim of the project is to identify in molecular terms the biocatalytic processes inherent in this biodegradation and to expand the understanding of the potential of molecular microbial biodiversity for dehalogenation processes. This will contribute to the information necessary for the

development of improved remediation strategies for treatment of PCB contaminated coastal sediments.

Funding scheme: Small Collaborative Project

Expected impact: Contribution to the model of KBBE; exploitation of marine microbial diversity. Understanding the relationship pollutant/biodegrader we contribute to a cleaner environment

Activity 2.4 Other activities

KBBE-2008-4-01 Network of Third Countries National Information Points – (ICPC and countries with bilateral S&T agreements/arrangements with the EU)

Call: FP7-KBBE-2007-2B

Reinforcing the network of National Contact Points (NCP) for the Seventh Framework Programme under Theme “Food, Agriculture and Fisheries, and Biotechnology”, by extending it to National Information Points from major Third Countries partners, towards promoting international co-operation under this Theme. The action will focus on identifying, sharing and implementing good practices. This may entail various mechanisms such as benchmarking, joint workshops, training and twinning schemes, as well as brokerage and information events to foster international co-operation. The proposal is expected to include all NIPs from Third Countries having a bilateral S&T agreement/arrangement with the EU; where applicable, it should be those thematic NIPs that have been officially appointed by the relevant national authorities.

The proposal is expected to be connected to the network of NCPs for “Food, Agriculture and Fisheries, and Biotechnology” from EU Member States, Candidate Countries and FP-Associated Countries, selected under the previous Call KBBE 2007-1 (topic KBBE-2007-4-01). The Commission expects to receive a single proposal under this heading.

Funding scheme: Co-ordination and support action (aimed at supporting the development of the Framework Programme). It is expected that this project should last for a maximum of 2 years, with a maximum EC contribution of 1.5 M €

Additional information: SICA – Specific International Cooperation Action - Minimum Number of Participants: 3 from different MS or AC and 10 from different ICPC having signed bilateral S&T co-operation agreements (Argentina, Brazil, Chile, China, Egypt, India, Mexico, Morocco, Russia, Ukraine and Tunisia) or Partnership Co-operation Agreements (e.g. Kazakhstan) with the EU. The participation of the non-ICPC countries having signed bilateral agreements/arrangements with the EU (Australia, Canada, New Zealand and USA) is also very strongly encouraged.

Expected impact:

This proposal is expected to foster international co-operation with major partner Third Countries under this Theme. It will contribute to the implementation of S&T bilateral agreements between the EU and Third Countries. It will provide support for an improved NCP service across Europe and in the World, therefore helping simplify access to FP7 calls, lowering the entry barriers for newcomers, raising the average quality of submitted proposals and facilitating international collaborations under this theme.

Activities outside of the calls for proposals:

In order to comply with the prevailing requirements for monitoring, evaluation, and impact assessment, several studies (implemented through public procurement) will be performed. It will include the ex-post impact assessment of relevant activities under the 6th Framework Programme and studies of the longer term impact of Community funding of research in related areas/disciplines/sectors, including from previous Framework Programmes:

- Call for tenders – Impact study on FP6 Food Quality and Safety Priority: STREPS and IPs (maximum budget: 200.000€)
- Call for tenders – Impact study on support to SMEs in the FP6 Food Quality and Safety Priority (maximum budget: 200.000€)
- Call for tenders – Study on the impact of international cooperation activities in FP6 on European research (maximum budget: 200.000)
- Call for tenders – Study assessing the impact of the projects funded under the 5th Community Research Framework Programme (1998-2002), “Quality of life and management of the living resources” Programme, key actions 1, 4 & 5 (maximum budget: 750.000.€)

Indicative budget for the “Food, Agriculture and Fisheries, and Biotechnology” Theme for the 2008 Work Programme:

	Budget 2008
Call KBBE 2007-2A	110.00 M €
Call-KBBE-2007-2B	96.41 M€
Call-ERANET-2008-RTD	1.00 M€
General activities (cf Annex 4)	3.69 M €
Other activities:	
Evaluations (1.4m EUR)	
Monitoring, evaluation and impact assessment (1.35m EUR)	2.75M €
Estimated total budget allocation	213.85 M €

Summary Budget allocation to general activities for 2008 (cf Annex 4):

Cordis	0.40 M €
Eureka/Research Organisations	0.06 M €
COST	1.73 M €
ERA-NET	1.50 M €
TOTAL:	3.69 M €

III IMPLEMENTATION OF CALLS

CALL FICHE

- Call identifier: *FP7-KBBE-2007-2B*
- Date of publication¹⁶: 6 November 2007
Deadline¹⁷: 19 February 2008 at 17.00 hrs (Brussels local time).
- Indicative budget: 96.41 M€ from 2008 Budget¹⁸

Activity	Funding Schemes	Indicative amount (million €)
Activity 2.1: Sustainable production and management of biological resources from land, forest and aquatic environments	Small collaborative projects and CSAs	47.77 M€
Activity 2.2: Fork to farm: Food (including seafood), health and well being	Small collaborative projects and CSAs	25.58 M€
Activity 2.3: Life sciences, biotechnology and biochemistry for sustainable non-food products and processes	Small collaborative projects and CSAs	21.56 M€
Activity 4: Other activities	CSAs	1.50 M€

- Topics called:

Activity/ Area	Topics called	Funding Schemes*
Activity 2.1: Sustainable production and management of biological resources from land, forest and aquatic environments.		
2.1.1	<i>KBBE-2008-1-1-01: Development of new tools and processes based upon genomic resources to support R&D in crop plants for breeding</i>	<i>Small collaborative project</i>
2.1.1	<i>KBBE-2008-1-1-02: Regulation of environmental responses and developmental processes by epigenetics in crop plants</i>	<i>Small collaborative project</i>
2.1.2	<i>KBBE-2008-1-2-01: Development of appropriate indicators of the relationship between organic/low-input farming and biodiversity</i>	<i>Small collaborative project</i>

¹⁶ The Directorate-General responsible for the call may publish it up to one month prior to or after the envisaged date of publication

¹⁷ At the time of the publication of the call, the Director-General responsible may delay this deadline by up to two months

¹⁸ Specific International Cooperation Actions (SICA) make up about 23.5 million € of the total budget and other actions with an important international dimension about 13.5 million €

2.1.2	<i>KBBE-2008-1-2-02: New and converging technologies for Precision Livestock Farming in European animal production systems</i>	<i>Coordination and support action (coordinating)</i>
2.1.2	<i>KBBE-2008-1-2-03: Assessment and mitigation of the impact of aquaculture on wild populations</i>	<i>Small collaborative project</i>
2.1.2	<i>KBBE-2008-1-2-04: Microbial control for more sustainable aquaculture</i>	<i>Small collaborative project</i>
2.1.2	<i>KBBE-2008-1-2-05: Improved agro-forestry systems for sustainable farming – SICA</i>	<i>Small collaborative project - SICA</i>
2.1.2	<i>KBBE-2008-1-2-06: Forecasting forest diversity under the influence of climatic changes and the consequences for stability and productivity of forest ecosystems</i>	<i>Small collaborative project</i>
2.1.2	<i>KBBE-2008-1-2-07: Forest energy – Short rotation forestry as a sustainable and eco-efficient land use management system for fossil fuels substitution within CDM-projects</i>	<i>Coordination and support action (coordinating)</i>
2.1.3	<i>KBBE-2008-1-3-01: Improving production animal health and food safety through investigating the gut physiology of farm animals, the gastro-intestinal microflora and their interactions</i>	<i>Small collaborative project</i>
2.1.3	<i>KBBE-2008-1-3-02: Foot-and-mouth disease: improve and / or develop vaccine, vaccination strategies and diagnostics assays for free and endemic settings – SICA</i>	<i>Small collaborative project -SICA</i>
2.1.3	<i>KBBE-2008-1-3-03: Improve tools and strategies for the prevention and control of classical swine fever</i>	<i>Small collaborative project</i>
2.1.4	<i>KBBE-2008-1-4-01: Development of new detection methods in support of Plant Health policy</i>	<i>Small collaborative project</i>
2.1.4	<i>KBBE-2008-1-4-02: Deep sea fisheries management</i>	<i>Small collaborative project</i>
2.1.4	<i>KBBE-2008-1-4-03: Fisheries management approach based on 'maximum acceptable limits of negative impacts'</i>	<i>Small collaborative project</i>
2.1.4	<i>KBBE-2008-1-4-04: Common Agricultural Policy – the dynamic and spatial dimension</i>	<i>Small collaborative project</i>
2.1.4	<i>KBBE-2008-1-4-05: Macro-economic analysis of competitiveness, including non-tariff barriers</i>	<i>Small collaborative project</i>
2.1.4	<i>KBBE-2008-1-4-06: Societal Impact of Organic Farming</i>	<i>Coordination and support action (supporting)</i>
2.1.4	<i>KBBE-2008-1-4-07: Exploring the pros & cons and the public perception of GM animals</i>	<i>Coordination and support action (supporting)</i>
2.1.4	<i>KBBE-2008-1-4-08: Characterisation and valorisation of Andean soil microbial diversity to support sustainable crop production and agro-ecosystems – SICA (Latin America-Andean region)</i>	<i>Small collaborative project - SICA</i>
2.1.4	<i>KBBE-2008-1-4-09: Agro-Economic Modelling Support Centre</i>	<i>Coordination and support action (supporting)</i>
2.1.4	<i>KBBE-2008-1-4-11: Addressing the gap between the Strategic Research Agendas (SRA) of relevant European Technology Platforms and the preparedness of the scientific community in Europe - Towards implementing the SRA</i>	<i>Coordination and support action (supporting)</i>
Activity 2.2: Fork to farm: Food (including seafood), health and well being.		

2.2.1	<i>KBBE-2008-2-1-01: Measures aimed at promoting healthy eating habits</i>	<i>Small collaborative project</i>
2.2.2	<i>KBBE-2008-2-2-01: Optimal human cell function and nutrition</i>	<i>Small collaborative project</i>
2.2.2	<i>KBBE-2008-2-2-02: Bioactive compounds in traditional food products (SICA Black Sea Region)</i>	<i>Small collaborative project (SICA)</i>
2.2.2	<i>KBBE-2008-2-2-03: Obesity prevention in the Mediterranean area (SICA Mediterranean Partner Countries)</i>	<i>Small collaborative project (SICA)</i>
2.2.3	<i>KBBE-2008-2-3-01: Exploring the micro-structure of foods</i>	<i>Small collaborative project</i>
2.2.3	<i>KBBE-2008-2-3-02: Alternatives to sulphites in foods</i>	<i>Small collaborative project</i>
2.2.3	<i>KBBE-2008-2-3-03: Training and career development for future food scientists</i>	<i>Coordination and support action (supporting)</i>
2.2.4	<i>KBBE-2008-2-4-01 Perfluorinated organic compounds in food</i>	<i>Small collaborative project</i>
2.2.4	<i>KBBE-2008-2-4-02: Biocides and antibiotic resistance</i>	<i>Small collaborative project</i>
2.2.5	<i>KBBE-2008-2-5-01: Influence of food contaminants on early programming leading to obesity</i>	<i>Small collaborative project</i>
2.2.5	<i>KBBE-2008-2-5-02: A lead market vision for food</i>	<i>Coordination and support action (supporting)</i>
2.2.5	<i>KBBE-2008-2-5-03: Dissemination of research projects in the food sector</i>	<i>Coordination and support action (supporting)</i>
Activity 2.3: Life sciences, biotechnology and biochemistry for sustainable non-food products and processes.		
2.3.1	<i>KBBE-2008-3-1-01: Plant natural products - Alternative sources for the synthesis of bioactive or industrial added value products</i>	<i>Small collaborative project</i>
2.3.1	<i>KBBE-2008-3-1-02: Sweet sorghum – An alternative energy crop for biofuel production in semi-arid and temperate regions – SICA (Latin America, South Africa, India)</i>	<i>Small collaborative project - SICA</i>
2.3.1	<i>KBBE-2008-3-1-03: European non-food crops and their industrial application</i>	<i>Coordination and support action (coordinating)</i>
2.3.1	<i>KBBE-2008-3-1-04: Plant produced vaccines SICA (Russia and other ICPC)</i>	<i>Small collaborative project - SICA</i>
2.3.1	<i>KBBE-2008-3-1-05: Development of fermentor-like applications and other plant-based containment systems for molecular farming</i>	<i>Small collaborative project</i>
2.3.2	<i>KBBE-2008-3-2-01: Molecular modelling for rational design of industrial enzymes – SICA (Russia)</i>	<i>Small collaborative project - SICA</i>
2.3.2	<i>KBBE-2008-3-2-02: Industrial bioprocesses for fine and speciality chemicals</i>	<i>Coordination and support action (coordinating)</i>
2.3.2	<i>KBBE-2008-3-2-03: Nanobiotechnology based biosensors for optimised bioprocesses</i>	<i>Small collaborative project</i>
2.3.2	<i>KBBE-2008-3-2-04: Novel nanobiotechnology (bio to nano) processes and products</i>	<i>Coordination and support action (supporting)</i>

2.3.2	<i>KBBE-2008-3-2-05: Life cycle analysis and socioeconomic assessment of integrated biorefineries</i>	<i>Coordination and support action (coordinating)</i>
2.3.2	<i>KBBE-2008-3-2-06: Development of high performance composites based on flax and hemp</i>	<i>Coordination and support action (coordinating)</i>
2.3.2	<i>KBBE-2008-3-2-07: Industrially relevant products and processes from marine biotechnology</i>	<i>Small collaborative project</i>
2.3.3	<i>KBBE-2008-3-3-01: Upgrading of wood, wood-related residues and humic-origin substances to value-added chemicals and materials: from biological understanding to innovative applications – SICA (Russia)</i>	<i>Small collaborative project - SICA</i>
2.3.3	<i>KBBE-2008-3-3-02: Marine anaerobic bioremediation</i>	<i>Small collaborative project</i>
Activity 4: Other activities.		
2.4.1	<i>KBBE-2008-4-01 Network of Third Countries National Information Points – (ICPC and countries with bilateral S&T agreements / arrangements with the EU)</i>	<i>Coordination and support action (supporting)</i>

Small collaborative projects (“small or medium-scale focused research actions”) are projects with a requested Commission contribution up to €3 million¹⁹ and Coordination and Support Actions (CSA) up to €1 million, unless stated otherwise in the work programme.

It is important to note that the above mentioned funding thresholds will be applied as eligibility criteria and that the proposals not fulfilling these thresholds are considered as ineligible.

- Particular requirements for participation, evaluation and implementation:

— The minimum number of participating legal entities required for all funding schemes is set out in the Rules for Participation.

— Please note, for Coordination and Support Actions aiming at supporting research activities and policies, the minimum number shall be the participation of one legal entity. For Coordination and Support Actions aiming at coordinating research activities, the minimum condition shall be the participation of three legal entities.

— For collaborative projects for specific cooperation actions dedicated to international cooperation partner countries identified in the work programme, the minimum conditions concerning participation rules are stated for each topic

- Evaluation procedure:

— The general eligibility criteria are set out in Annex 2 to this work programme

— The evaluation shall follow a single stage procedure

— Proposals may be evaluated remotely

— The evaluation criteria (including weights and thresholds) and subcriteria, together with the eligibility, selection and award criteria, for the different funding schemes are set out in Annex 2 to this work programme

— Proposals will not be evaluated anonymously

- Indicative evaluation and contractual timetable:

— Evaluation results: two months after the relevant deadline mentioned above.

¹⁹ In general, projects supporting policy through a study-type approach will be significantly less than this – applicants should ensure that the budget is appropriate to the work carried out.

— Contract signature: It is estimated that the first contracts related to this call will come into force at the end of 2008.

- Particular requirements for participation, evaluation and implementation:

The selected topics may be open only for the call indicated, and it is envisaged that up to one project will be retained for each topic, unless otherwise indicated. There may be competition between proposals submitted on different topics and proposals submitted on the same topic. This may result in some topics not being supported.

- The forms of grant and maximum reimbursement rates which will be offered are specified in Annex 3 to the Cooperation Work Programme

- A reserve list may be produced of projects that pass the evaluation but fall below the available budget in case additional budget becomes available.

- Indicative budgets may be adjusted by the authorising officer where the adjustments are not more than 20% of the indicative amount.

End of call fiche

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