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30th of January 2007, Winterthur/Zurich, Switzerland
International Partnering Meeting
European collaboration for R&D and Innovation
in the forest-based and wood industries
Find partners for your FP7 projects

DRAFT Description Topics first Calls FP7

Expected topics

Important notice:

Following topic description corresponds to the expected topics of the first FP7 calls which are interesting for the forest based and wood industries and which will be subject of the afternoon sessions.

IT'S A PROVISIONNARY DESCRIPTION. CHANGES MAY OCCURE. CHECK THE UPDATET DESCRIPTION AFTER PUBLICATION OF THE FIRST FP7 CALLS EXPECTED ON December 22nd!

=> www.tts.fi/woodism/events/zurich.htm

RESEARCH FOR THE BENEFIT OF SMALL AND MEDIUM SIZED ENTERPRISES (SMEs)/ ASSOCIATIONS OF SMEs.

BOTTOM-UP APPROACH (NO GIVEN TOPICS)

This FP7 funding scheme is interesting for all sectors of the forestry value chain (Bottom-up approach, no given topics). The objective is to help increase the competitiveness of small and medium-sized enterprises (SMEs) by funding research and development activities in cooperation with qualified public or private research performers (universities, institutes of technology, industry, SMEs). There is no restriction in terms of research topics (bottom-up approach), provided the research meets the needs of the SMEs involved and has clear potential for exploitation.

The principle is as follows: qualified research institutions (e.g. universities, research centres) work with SMEs and associations of SMEs to develop solutions for the SME's problems. Those performing the research are funded 100 % and the SMEs obtain exclusive rights to exploit the results.

FOOD, AGRICULTURE AND BIOTECHNOLOGY

KBBE-2007-1-2-07: Novel forest tree breeding

Call: KBBE-2007-1

By focusing on improved/novel breeding strategies (e.g. resistance breeding, marker assistant breeding, genetically designing trees with enhanced physiological characteristics), this project will address increasing societal needs, such as the sustainable biomass production from forests as a replacement for fossil fuels and other petrochemical products, improved raw material quality and quantity for forest based products. Concomitantly, the project will need to reduce the vulnerability of trees towards the impact of biotic hazards, pests, diseases and improve adaptation to changing environmental conditions due to climate change, as well as the potential impacts of enhanced biomass utilisation on sustainability.

Funding scheme: Large collaborative project

Expected impact: This project will help the European forest-based sector to adapt production strategies to already shifting and in the future more rapidly changing market and environmental conditions. Consequently it will strengthen the sector's global competitiveness by demonstrating novel/improved methods to breed trees with improved quality and quantity parameters.

KBBE-2007-1-2-08: Developing new methods for valuing and marketing of currently non-marketable forest goods and services

Call: KBBE-2007-1

The project will develop new valuation methods to assess the socio-economic impact of a wide range of forest externalities and, additionally, develop new or improved marketing concepts and integrated production methods for non-wood forest products. These methods and concepts will address the changes in forestry production where goods, benefits and services such as clean water and air, recreation, hazard protection and prevention, landscape, etc. are becoming more important as a forest product but currently lack sufficient economic incentives to be viable.

Funding scheme: Small collaborative project

Expected impact: The project will help develop a viable income for forest owners, secure the future stability of European forests and contribute to a sustainable rural development by reducing the abandonment of forests as a result of the long-term stasis in prices for wood-based forestry products. It will provide models for validating and marketing of several forest externalities and give guidance to policy makers for implementing those models.

KBBE-2007-1-4-01: Developing the knowledge-based bio-economy (KBBE)

Call: KBBE-2007-1

This project will assist in the development and application of new or improved existing models and indicators for supporting analysis, development and monitoring of the social and economic impact of the implementation of the Knowledge-Based Bio-Economy in Europe. Among others, the impact on the Common Fisheries and Agriculture policies should be addressed, and will include its impact on Europe's competitiveness at the global level.

Funding scheme: Coordination and support action

Expected impact: The project will measure the social and economic impact of the KBBE approach to European development and, thus, assist in the development of the KBBE concept.

KBBE-2007-3-1-01: PLANT CELL WALLS - Understanding Plant Cell Walls for optimizing Biomass potential

Call: KBBE-2007-1

Plant Cell Walls characterise the major biomass resource on the planet. They are composed of high energy polymers as well as complex mixtures of additional polysaccharides, proteins and small molecules. In principle, biorefining can convert these cell walls into sugars and other renewable feedstocks for industrial biotechnology. They have however naturally evolved to resist breakdown from mechanical and microbial forces so unlocking the components in these biomaterials represents a massive scientific and technical challenge. Multidisciplinary integrated research is called for which addresses the chemistry of cell wall polymers, particularly the lignins, microcrystalline cellulose, hemicelluloses and pectins; the cell biology of the wall in order to structural organization; bioprocessing of the raw material, to design novel and more efficient fractionation systems; enzyme biochemistry and technologies of hydrolases involved in cell wall degradation; genomics, proteomics and metabolomic analysis of cell wall biosynthesis and metabolism to devise new plant breeding strategies for the production of raw materials enhanced for biorefining including microarray technologies.

Funding scheme: Large collaborative project

Expected impact: Demonstration of EU-US collaboration in tackling a fundamental technical bottleneck in the development of biomass potential. Essential generic knowledge for the exploitation of plant material in the production of industrial products, including food.

KBBE-2007-3-1-04: FOREST PRODUCTS - New forest based products and processes

Call: KBBE-2007-1

The forest is our most ancient source of renewable and sustainable material. The exploration of forest based products for including novel tree species and sustainable processes which improve properties and processing facilities will be sought along with the production of high added value products made of wood based fibers with high durability and usability. Meeting consumer demand for new products by replacement of "unsustainable products" with wood as well as energy saving processing, and replacement of hazardous components (glues, painting, and preservatives) with environmentally friendly biobased products will be investigated.

Funding scheme: Large collaborative project

Expected impact: Diversification of the forest industries and opportunity to apply post-genomic knowledge in the production of derived forest products.

KBBE-2007-3-1-08: BIOMASS SUPPLY - Identification of optimal terrestrial and aquatic biomass and waste for Bioproducts

Call: KBBE-2007-1

In the context of anticipated expansion of the farming area put down to biomass and biofuel production there is a need to quantify the potential and identify the best sources of European biological feedstocks for industry while at the same time evaluating the sustainability of biomass and biofuel production with respect to their availability production and supply cost and environmental, societal and economic impact. Identification of the optimum Life Cycle Assessment, economic, social and environmental impact schemes must be included in the study.

Funding scheme: Coordination and support action

Expected impact: EU sanctioned guidelines for farmers and policy makers as to the best biomass sources to cultivate according to region, climate, policy, life cycle assessment, processing, access, etc. Stronger use of industrial and agricultural waste as resources for added value products contribute to more sustainable industrial production and better resource uses.

KBBE-2007-3-2-01: LIGNOCELLULOSIC ENZYMES - Development of cellulases for lignocellulosic biomass pre-treatment

Call: KBBE-2007-1

The use of lignocellulosic biomass could offer significant advantages compared to the current use of sugar or starch as the main substrate for fermentation processes. Such biomass feedstock would primarily be produced on the basis of either waste products from agriculture (straw), forestry (thinning wood, residuals) or wood-based industries (saw dust, 'black liquor' from pulp and paper industry) or from specific energy crops such as short rotation forestry or other cellulosic material. However, for hydrolysing such lignocellulosic biomass into fermentable sugars, efficient enzyme mixtures of cellulases and other hydrolytic enzymes are required that are not yet available and presently form a formidable bottle-neck for the further development of the bio-based economy in Europe.

Funding scheme: Small collaborative project

Expected impact: Expanded knowledge base on metabolic pathways and mechanisms for the complete breakdown of lignocellulosic material in either waste or dedicated forestry/plant based feedstock streams.

NANOTECHNOLOGIES, MATERIALS, PRODUCTION TECHNOLOGIES

NMP-2007-2.4-3 Renewable materials for functional packaging applications

Technical content / scope: Innovative renewable materials (e. g. wood or vegetable based) and their ecoefficient processing are required to provide novel entirely-renewable functional packaging solutions for a global market. Important drivers for innovation using life-cycle approaches in these renewable packaging materials are cost reduction, improved functionality, higher flexibility and prolonged shelf life of packaged consumer goods by improved barrier (e.g. active, antimicrobial, permselective, intelligent adaptive) performance. Smart features such as displays or sensors can be incorporated into packaging materials using ink and printing technologies that allow for low production costs. The focus should be on the design and processing of innovative, renewable packaging materials as well as on the interactions between different types of renewable materials, e.g. in multilayer packaging, using the latest developments in nanotechnology. Special emphasis should be put on material performance (e.g. functionality, surface strength, moldability, chemical and microbiological safety, biodegradability, hydrostability, moisture resistance and microbiological immunity). Materials processing should display low emissions, reduce the use of chemicals, but enhance the use of "green" biotechnological alternatives in the manufacture and treatment of packaging materials and printing inks.

Funding scheme: Small or medium-scale focused research projects.

Special features: Industrial participation is required.

Expected impact(s): From product storage and distribution to waste disposal and environmental degradation of packaging materials. Packaging is a high volume business close to the consumer where demands for a sustainable transformation will continue to increase. A contribution towards the overall target of reducing greenhouse gases and the dependency on petroleum resources is expected..

NMP-2007-4.1 Advanced Wood-Based Composites and their Production

Technical content / scope: The market price on standard technology wood-based products is increasingly driven by low labour cost countries that have short timber harvesting cycles. The difference in production costs is so significant that improving production efficiency is not sufficient alone to maintain the competitiveness of the European forest-based industry. A strategy for success is to develop new high added value products produced by new resource efficient production concepts.

Wood as a natural and abundant composite can form the basis for a completely new industry based on intelligent recombination of specific physical properties such as heat insulation, conductivity and mechanical strength and shape in engineered wood products (EWP). For example, replacing lignin with silicon, geofiller or ceramics in the wood nano-structure, chemical grafting of cellulose or environmentally friendly chemical densification can yield radically new product properties. New wood and bio-fiber polymer composites (e.g. transformation of wood fibers and thermoplastic resins into wood polymer composites throughout plastic processing, injection moulding, extrusion or pultrusion) show high potential for construction, furniture and packaging applications. The ambitious research objectives include adaptive production concepts for new composites based on wood fibres, cellulose, lignin, or hemicelluloses, and their derivatives; manufacturing technologies such as moulding, shaping, compounding, melt blowing and electro-spinning; new manufacturing methods for sheet structures and converting operations that enable paper to replace non-renewable materials; engineering concepts for cellulose processing, e.g. melting and solid-state processing.

Funding scheme: Large-scale integrating projects

Specific features: Although this is not a dedicated SME topic, a significant SME participation is nevertheless expected.

Expected impact: The expected strategic impacts include: (1) placing sustainability at the forefront of cost control and competitive advantage as well as emphasising its role in industry's social responsibility, and (2) addressing Health and Safety issues for both the worker and the consumer through promotion of intrinsically better technologies. More specifically, funded proposals are collectively expected to develop several new product families based on new production concepts that exploit the potential of wood-based composites across a variety of applications in the health, electronics and food sectors, as well as in the fields of construction, furniture, packaging, speciality papers, vehicles and textiles.

NMP-2007-3.1-2 New added-value user-centered products and product services

Technical content/ scope and deliverables: The objective is to improve the long term competitiveness of the European manufacturing industry by adopting more user driven innovation modes that allow for integration of customers and users into all phases of the value adding chain. The markets increasingly demand customised products that fulfil not only one but several criteria for customisation ranging from strict technical functionality to emotional aspects, to improved quality of life, health and environment, while imposing short delivery times. On the other hand, a continuous shift of business is taking place towards product services, capable of fulfilling specific users' demands. Customers and users must therefore have flexible means for participating in the creation phase of product-service systems and these solutions must be seamlessly integrated with production scheduling, highly advanced manufacturing process technologies, delivery logistics etc. Companies also need to adopt new organisational solutions and develop specific skills for realising continuous interaction with customers.

The research should therefore focus on the synergistic integration of the diverse aspects of this production model, including: customer interface facilitating assisted product and product service creation; data flows and standards for product data; manufacturing technologies capable for the automated production of products in small to single piece

batches integrating user characteristics needs and desires, delivered just in time. This includes the integration of the manufacturing of the piece itself as well as its decoration, surface treatments and/or the addition of functionalities linked to the digital world.

Deliverables will take the form of pilot implementations in an industrial setting, covering consumer products oriented sectors and demonstrating the feasibility of the concept.

Funding scheme: SME -targeted projects

Specific features: SME dedicated collaborative projects are specifically designed to encourage SME participation in research and innovation representing the complete value added of the targeted sectors. Research and innovation activities need to be covered by the projects. At least 35% of the EC contribution will be allocated to the participating SMEs. The projects will be led by SMEs with R&D capacities but the coordinator does not need to be an SME. The participating SMEs should have the decision making power in the project management. The output should be for the benefit of the participating SMEs and the targeted SME dominated industrial communities. Proposals only focussing on product-service design issues are excluded (covered by topic NMP-2007-3.3.-1). The consortia should include all the key players in the product supply chain (although this is an SME dedicated topic, OEMs falling outside the SME definition are nevertheless eligible to participate.)

Expected impact: Strategic impacts for the SME manufacturers include: realisation of maximum value at minimum time through knowledge management; capability to operate flexible and interdisciplinary product teams as well as testing and validating cooperative and strategic partnership arrangements, creating new business opportunities; creating total management of customers-based innovation processes. A positive contribution to sustainability is also expected as overproduction can be avoided (products manufactured on demand) and due to longer product lifespan.

NMP-2007-4-5 Resource Efficient and Clean Buildings

Technical content / scope: The construction industry, as a major industrial sector, must provide a significant contribution to the reduction of natural resources consumption and to a wider use of renewable resources. The main objective of the topic is to reduce raw materials resources & energy consumption and environmental impact of buildings during their entire life-cycle (80% of energy consumption occurs during service-life).

The main development issues and targets are: new concepts, technologies, design tools and business models for "intelligent buildings", able to significantly reduce or even meet their own energy consumption; improvement of the building energy performance (through cladding and ventilation technologies, sensors and pervasive computing systems, utilisation of embedded renewable energy sources...) at building and at district levels. Developments are also required in new and improved materials and structures to improve the indoor environment as well as resource and climate, energy consumption conversion and storage capacities of buildings. Deliverables include the development, integration and demonstration of the above concepts e.g. for apartment buildings, offices, hospitals, schools, factories or airports.

Funding scheme: Large-scale integrating projects

Specific features: A substantial industrial participation is recommended. The activities under this topic could benefit from the participation of ICPC partners.

Expected impact: As more than 40% of all energy consumption is due to domestic and service sectors, apart from the direct economic benefits, the topic contributes significantly towards meeting the Kyoto protocol obligations and would reduce Europe's reliance on imported energy.

ENERGY

Topic ENERGY.2007.2.2.5: Novel solid biofuels for electricity generation

Content/scope: Demonstration of the production of new, tradable solid biofuels fully or partially based on unconventional and difficult resources such as straw including their longterm application in existing bio-electricity installations is intended. The new biofuels

should be ready-to-use for the plant operators without the necessity of major technical adaptations of the existing conversion plants themselves. Supplementary pre-normative work aiming at a future European-wide standardisation of these new biofuels is welcome.

Funding scheme: Collaborative project with a predominant demonstration component.

Expected impact: Increase the range of usable biomass feedstock for existing bioelectricity installations. Reduce the production cost of solid biofuels through the (partial) use of low-cost feedstock.

Other information:

Open in call: COOP-ENERGY-2007-2-TREN

Topic ENERGY.2007.3.2.1: Pre-treatment of lignocellulosic biomass for ethanol production

Content/scope: Development of new and advanced pre-treatment technologies for lignocellulosic biomasses (agricultural residues, wood, forestry residues and biodegradable fraction of municipal solid waste and perennial annual crops). Research should focus on optimising the exposure of cellulose and hemicellulose for subsequent enzymatic hydrolysis, while minimising the production of inhibitors and reducing the environmental impact of the pre-treatment. The technologies developed should improve the overall process efficiency of the whole lignocellulose to ethanol process, and optimise the pre-treatment for the production of added value bio-products in this phase or the subsequent steps. Research should include testing of the technology from lab-scale to pilot reactors.

Funding scheme: Collaborative project (expected to be small-medium size) with a predominant R&D component.

Expected impact: The results are expected to substantially reduce the cost of the pre-treatment step and improve its environmental performance.

Other information: For technology development, SMEs are expected to represent the core members of the team.

Open in call: COOP-ENERGY-2007-1-RTD

Topic ENERGY.2007.3.2.2: New and advanced technologies for hydrolysis and/or fermentation of lignocellulosic biomass

Content/scope: Optimisation of the enzymatic hydrolysis of cellulose and hemicellulose, and/or the fermentation of the produced sugars, either as separate processes or in SSF (simultaneous saccharification and fermentation). Research should focus on one or both of the following steps: (1) Development of new and improved enzymes (e.g. thermostable enzymes) and enzyme systems, with a view to improving the rate of enzymatic hydrolysis and enzyme recycling in the whole lignocellulose to ethanol process. Research should include both production of the improved enzymes and their testing - at laboratory scale and in a pilot reactor - on pretreated biomasses ranging from agricultural residues to wood and forest residues, the biodegradable fraction of municipal solid waste and perennial annual crops.

(2) Development of improved yeasts and/or thermophilic bacteria aiming at increasing the ethanol yields of the fermentation of C5 and C6 sugars from hydrolysed lignocellulosic biomass. Research should address the optimisation of fermentation conditions, including the effect of the degradation compounds on fermentation.

Funding scheme: Collaborative project (expected to be small-medium size) with a predominant R&D component.

Expected impact: The results are expected to substantially reduce the cost of lignocellulosic ethanol production.

Other information: For technology development, SMEs are expected to represent the core members of the team.

Open in call: COOP-ENERGY-2007-1-RTD

Topic ENERGY.2007.3.2.5: Synthetic biofuels via gasification

Content/scope: Demonstration at industrial scale of synthetic biofuels from lignocellulosic biomass (and its derivatives such as black liquor and flash pyrolysis bio-oil), with emphasis in the production of clean synthesis gas and the final synthetic fuel process steps. The final output of this demonstration should lead alternatively to one of the following final products: DME, methanol, ethanol, Fischer-Tropsch biofuel or biomethane. The methanol could also be used for hydrogen production; the ethanol for both CHP applications and hydrogen production. The final biofuel should also be tested in appropriate engines and/or vehicles and/or fleets in order to check technical standards, commercial possibilities and engine compatibilities.

Funding scheme: Collaborative project with a predominant demonstration component.

Expected impact: New types of biofuels production processes with significantly improved energy and environmental performance.

Other information:

Open in call: COOP-ENERGY-2007-2-TREN

Topic ENERGY.2007.3.3.1: Forest-based biorefinery

Content/scope: Development of advanced fractionation and conversion technologies to be integrated in a pulp mill for the combined production of new bioproducts and biofuels (solid and/or transport fuels by fermentation or syngas route) from forest-based biomass and mill residues. project should include development from lab scale to pilot plant. The optimised integration of the developed technologies in a pulp mill should be covered. Research could address: extracting hemicelluloses before pulping for the production of fuels and bioproducts, extraction of chemicals from black liquor, syngas route to fuels and chemicals from forest biomass and mill residues.

Funding scheme: Collaborative project (expected to be larger size) with a predominant R&D component.

Expected impact: The results are expected to maximise the renewable energy output from existing pulp mills, thus optimising the economics of the whole process.

Other information: For technology development, SMEs are expected to represent the core members of the team.

Open in call: COOP-ENERGY-2007-1-RTD

Topic ENERGY.2007.3.3.3: Developing biorefinery concepts

Content/scope: Development of advanced biorefinery schemes to be integrated into existing industrial complexes, such as sugar/starch ethanol plants, oil-seed crushing/transesterification plants, pulp and paper mills, oil refineries. Feasibility studies should identify the optimal integrated schemes of production and the best suited "building blocks" in term of processes and bioproducts. The analysis should consider optimal uses of the sidestreams, innovative fractionation and conversion technologies, most promising bioproducts and maximising energy production. Simulation tools will be necessary to support the analysis, which should focus on a particular biomass sector, and should identify the main technological challenges for the realisation of the developed schemes.

Funding scheme: Support Action. More than one may be funded.

Expected impact: The analysis will identify opportunities for various biomass-based sectors to produce fuels while increasing their competitiveness.

Other information: SMEs are important in the innovation process for this topic.

Open in call: COOP-ENERGY-2007-1-RTD

ENVIRONMENT

Topic 6.1.1.5.2. Climate Change Impacts on vulnerable Mountain Regions

The impacts of climate change on physical, biological and socio-economic systems of

mountain regions should be quantified from time periods covering next decades to a century including field campaigns and modelling studies. Emphasis should be given to water and energy supply, tourism, forestry and agricultural production, and services from semi-natural and natural (pristine) ecosystems. Research should also address the resulting social and economic impacts. Focus should be on regions with particularly high vulnerability. Participation of international partners is encouraged.

Funding scheme: up-to-two Collaborative projects /Network of excellence

Expected impact: *Expertise and integrated models applicable to other mountain regions of the world.*

Topic 6.1.1.6.3. Impacts and feed-backs of climate policies on land use and ecosystems in Europe.

Research should assess the impacts of climate (and other sectoral) policies on land use and the resulting feed-back on the climate system. Regional climate models should be coupled with land use models to improve the representation of explicit biophysical and economic mitigation and adaptation strategies in agriculture and forestry. Improved methodologies should be used by spatially explicit crop/trees growth models that have sufficient, subnational spatial detail to determine the responses and adaptation possibilities of crops and trees to both scenarios of extreme climate events and changes in weather patterns. Models should include scenarios for the distribution and pressures from socio-economic drivers with sufficient geographical details. Research should help to assess the impacts of alternative policy scenarios and estimate the associated costs and benefits of the policies.

Funding scheme: One Collaborative Project

Expected impact: *Assessment of the efficiency of current and future land use adaptation and mitigation processes, including carbon sinks. Identification of the adaptation induced by policies, in particular by the Common Agricultural Policy, Rural development Strategy, forestry related measures and in general EU policies on climate change.*

Topic 6.2.1.4.1. Contribution of biodiversity to ecosystem services

Understanding how biological diversity terrestrial and marine at European and international levels contributes to ecosystem services and to livelihoods. Work should contribute to better understanding of the values of and human dependence on biodiversity, the implications of change, and an evaluation of the costs and social and environmental consequences of not halting biodiversity loss. Cost and benefits of strategies to preserve, restore and use biodiversity in a more sustainable way should also be assessed. The topic is important in the context of European competitiveness because the loss of biodiversity will impact upon the provision of goods and services. Major economic sectors depending/impacting on biodiversity have to be considered (agriculture, forestry, fisheries, transport, trade, tourism, industry).

Funding scheme: Collaborative Project(s)

Expected impact: *Work in this topic should help quantifying the cost of loosing biodiversity, e.g. in terms of products and services, and ultimately in terms of reduced productivity. Increased understanding by researchers, regional planners and political and economic actors, including civil society organisations active in the economic sectors under consideration should make it possible to develop management strategies that will protect or rebuild ecosystems and help maintain the provisions of the services upon which economic competitiveness and welfare depend. Communicating research process and results in a constructively engaged way to the full spectrum of societal actors is of utmost importance to maximise its policy relevance and impact*

Topic 6.2.1.4.2. Use of natural resources: the impact on biodiversity, ecosystem, goods and services

Improve understanding of how the use of natural resources at European and international levels affects biodiversity (marine and terrestrial), ecosystem goods and services and the resilience of ecological-economic systems, and develop or improve methods to measure and value biodiversity and ecosystem resilience and detect when ecosystems are approaching the limits of their natural functioning or productive capacity. This topic complements the precedent. It relates to competitiveness, which depends on the state of biodiversity and ecosystem. Results will be shared effectively with citizens and other societal actors in ways that facilitate general understanding and impact on social, economic and environmental planning and decision making.

Funding scheme: Collaborative Project(s)

Expected impact: *This work should allow measuring and showing in the public domain the impact of the use and abuse of natural resources on ecosystem services, and the ways in which systems may respond. The results should allow governmental and non-governmental actors to discuss and develop viable policy options and should support their implementation. Results will have to be communicated effectively to citizens and other societal actors in Europe and in other parts of the world in ways that facilitate general understanding and impact on social, economic and environmental planning and decision making.*

Topic 6.3.1.5.1. Low resource consumption buildings and infrastructure

This coordination and support action should identify, promote and facilitate the uptake of new or improved technologies for the built environment which result in reducing substantially, throughout the life-cycle of structures, the use of multiple, natural and non-renewable resources (water, primary raw materials, energy, land) and which reduce waste, including through facilitating waste separation and the re-use and recycling potential of materials. Analysis of pre-normative research, standards, training needs, directives and regulatory framework, and policy recommendations should be also included together with consideration of non-technical barriers to the

uptake of innovative environmental technologies. This action is expected to serve as a basis for large collaborative research projects on low resource consumption, efficient buildings and infrastructures in close collaboration with the NMP Programme. A relevant industrial participation, and in particular of SMEs, is requested.

(SME relevant and Policy relevant topic; collaboration with Theme 4, NMP)

Funding schemes: up-to 1 Coordination and Support Action

Expected impact: *Projects should be capable of demonstrating how and to what extent their activities will realistically contribute in the short, medium and long term to the promotion and uptake of sustainable environmental technologies for reducing resources consumption in buildings and infrastructures. This coordination action should provide support for policy in line with the Directives on energy performance of buildings, Integrated Pollution Prevention and Control (IPPC), on Landfill, Waste Framework Directive (WFD), and the Regulations on Eco-management and Audit Scheme including the Kyoto Protocol albeit on a more general level.*